



# Cumberland HCP

## ITEMS OF INTEREST:

- Say hello to the new members of the HCP Staff!
- Guest-written article on work with the Cumberland Dusky Salamander.

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## Notes from the HCP Director, Katherine Medlock

As we enter into a new year, I'd like to take this opportunity to reflect on the success of our Habitat Conservation Planning efforts. The Northern Cumberlands Forest Resources Habitat Conservation Plan is almost complete and ready to be submitted to the US Fish and Wildlife Service. We are truly grateful for all of the hard work that has gone in to achieving this milestone for the project. In addition to that, the Water Resources HCP is gaining speed and momentum as well. We are working to establish liaisons in all of our applicant jurisdictions, and 2010

brought us much closer to determining our covered species and covered activities through rigorous scientific processes.

Looking ahead, I am very excited about our plans and goals for the year. It promises to be a year full of achievements for the project. We will be focusing on the science of creating the Water Resources HCP. This year we will complete our take modeling and make key decisions about implementation of conservation measures. However, that doesn't mean we'll be neglecting our outreach. In fact, we are

currently taking our message to the people with a road show. If you have a group that would be interested in hearing more about the HCP, conservation in the Cumberlands, rare plants and animals of the Cumberlands, or similar topics, we'd love the opportunity to share some information! See page 6 for more details.

Katherine Medlock

## Science in the HCP

Have you ever wondered how scientists actually collect data on the rare species covered by the HCP? Researchers must determine which areas contain critical habitat and verify species observation in that area. Our scientists must collect real data, which typically requires being able to find/track/observe individuals of a particular species. This can be made even more difficult since the species we work with are rare, but despite all the hard work involved, there is a great deal of excitement involved in seeing the results.

Research can be very exciting.

It can involve finding the unexpected, getting to touch the delicate or dangerous, traversing areas people seldom travel, or even observations from a plane at night.

Sometimes gathering data involves taking to the waters on the plateau. What if you needed to find the habitat for some of our aquatic species, such as spotfin chub or Cumberland elktoe, in the Obed or Big South Fork River systems? After all, if we know what areas had the most suitable habitat for certain species then we could know what areas had the most

**Welcome to the three newest members of the Cumberland HCP!**

**Teresa Payne:**

Outreach Coordinator based at UTK

**Chris Burcher:**

Science Coordinator based at UTK

**Yoichiro Kanno:**

Quantitative Aquatic Ecologist based at TTU

*cont. on page 4*

# Water Resources HCP Update

The Water Resources HCP (WRHCP) Core Team has continued to focus on covered species while the take-model has largely been on hold after the departure of Dr. Joe Daraio. One new development for the WRHCP is the beginning of the Cumulative Impacts and Changed and Unforeseen Circumstances. The Cumulative Impacts section of the HCP will address additional impacts that are not accounted for in the covered activities but could potentially lead to the take of covered species. The Changed and Unforeseen Circumstances section will address changes in circumstances that could adversely affect a species or geographic area covered in the HCP. Changes that can reasonably be anticipated by the applicant or USFWS and to which we can plan a response are known as “changed circumstances,” and changes that could not reasonably have been anticipated at the time of the HCP’s development are known as “unforeseen circumstances.”

## Covered Species

After continued research and consultations, it has been determined that we can reduce the covered species list dramatically without negatively impacting our ability to protect and preserve the species of most concern. Some species can be eliminated because their habitat and occurrences are in the buffers used by the HCP, and parts of these buffers have been found to overlap with watersheds outside the project area that would not be impacted by any of our covered activities. One point worth noting is that non-federally listed bats will be removed and the impacts of White Nose Syndrome will be addressed by “changed circumstances” in the future.

The single largest change affecting covered species is modifying step three of the decision tree that is used to determine whether a species is a candidate for the WRHCP. The wording will be changed to remove

reference to state endangered or threatened species. The new wording of step three will read, “Is the species federally endangered or threatened, highly endemic to the project area, globally imperiled to globally critically imperiled, and/or highly likely to be federally listed during the duration of the HCP?” Therefore, non-federally listed species, with the exception of those that are likely to be listed, will no longer be considered as covered species, but will be addressed in the final document. The species will still benefit from the protection measures generated for HCP covered species. The removal of non-federally listed species results in a decrease of covered species from the original total of 125 covered species to 51, which is more easily manageable.

## Covered Activities

Jennifer and Malissa both met with representatives from Crossville during the fall to discuss the proposed covered activities. The purpose of the meetings was to ensure that that we had not overlooked any activities the applicant would like to cover. One activity of particular interest at these meetings was the repair and maintenance of water lines. The issue at hand is the discharge and volume of chlorine used in purging lines before being able to transport potable water.

## Take Model

Over the fall, emphasis has been given to developing an assessment of the risk of take of covered species associated with development activities within Morgan and Scott Counties. Population projections for these counties reveal relatively slow growth, meaning that there is potentially less risk of harm to covered species in Morgan and Scott Counties. Therefore it is necessary to determine what the level of risk is to covered species within these counties. As assessment results are finalized, the WRHCP will begin meeting with representatives of the two counties in determining how to best proceed.

## Steering Committee

The WRHCP Steering Committee held a conference call on October 20<sup>th</sup> and a meeting on December 15<sup>th</sup> in Crossville, TN. During the conference call an update of the Science Advisory Committee meeting was given along with revisions to the covered species list. During the meeting it was decided that the next steps should be both working out an analysis of development impacts for Morgan and Scott Counties, and a series of one-on-one meetings with our applicants to discuss their involvement in the HCP based upon our analysis results. At the December 15<sup>th</sup> meeting, Ruth Ann Hanahan gave a presentation on Tennessee Yards and Neighborhoods (TYN). The TYN presentation discussed how the program works to improve water quality and promote healthy environmentally friendly yards.

In December, the Steering Committee agreed to adopt proposed changes to the species decision tree presented by Malissa Davis. These changes reduce the total number of covered species significantly, leaving only species that would most likely require an incidental take permit. Covered species will now either be federally listed or likely to become federally listed in the life span of the HCP. Jennifer Gihring and Malissa also discussed their meeting with the Crossville representatives to determine any missed covered activities, particularly water lines and repair.

## Forest Resources HCP Update

The Northern Cumberland's Forest Resources Habitat Conservation Plan (NCFRHCP) team has continued to work closely with Tennessee Wildlife Resource Agency (TWRA) on finalizing significant chapters in the HCP, such as the draft monitoring and adaptive management plans.

Adaptive management topics include responding to disturbances in riparian buffers and reserves, as well as the management of cerulean warblers and oak regeneration on the Northern Cumberland Wildlife Management Area. The project management team for the NCFRHCP held a three day retreat with TWRA to focus on these topics. The retreat represented a significant investment of time on TWRA's part. Everyone at the Cumberland HCP would like to thank the staff at TWRA for their continued commitment and involvement in the project.

Sean Blomquist, former SAC coordinator, completed the draft take model and user's guide before leaving the HCP project at the end of 2010 to take a position with U.S. Fish and Wildlife Service (USFWS). TWRA is currently reviewing the model and continuing work to complete the HCP. We are very proud of the work on the NCFRHCP by TWRA and the HCP Project Management Team and look forward to being able to share the finished product.

One of the greatest accomplishments for the FRHCP was the completion of the management proscriptions and adaptive management for the cerulean warbler. Through many meetings with species experts and internal TWRA meetings, TWRA has devised an approach that they feel confident is supportive of the important cerulean warbler habitat within the project area. As many

readers may know, the species is not federally listed as an endangered species, but its population has been in long-term decline. This species has been petitioned to be listed, but USFWS has so far declined to list it as threatened under the Endangered Species Act, since it has been deemed unlikely that the species runs the risk of going extinct in the foreseeable future.

## HCP Spotlight: Gay Stewart

Gay Stewart, Executive Director for the Home Builders Association of Cumberland County, was born in Detroit, Michigan before moving to Knoxville as a child. Twenty-two years ago, after having gone into business and starting a family in Knoxville, she and her husband bought some property on the plateau as a getaway and slowly began to make it their home.

Speaking of her home, Mrs. Stewart's home is unique. It is almost entirely made of concrete. The walls, floors, and even the counter tops are all concrete. Thanks to heated floors, there is no worry about that first icy step out of bed in the morning. The house also makes use of resources from the property itself. Stones from the property adorn the outside of the house,

water comes from a well, and there is also a generator in case the power goes off. And if you get tired of being indoors, go for a walk by the lake and her bass named Buddy will let you feed him grasshoppers.

Mrs. Stewart has been an active member of the HCP for three years as the representative for the building community. As a developer, she brings a valuable perspective to the project. In addition to protecting the natural beauty that makes the plateau a unique and wonderful place, there is also a need to develop more land to handle the growing population and its needs. With Mrs. Stewart on board, we are working together in creating solutions that can benefit the building community along with the rare species found on the

plateau. She lets the rest of us know what the building community thinks about our proposals and recommendations. Everyone at the HCP would like to thank Mrs. Stewart for her continued help and input on



## Science in the HCP *(cont. from page 1)*

suitable habitat for certain species then we could know where to look for the species and know what areas are the most important to protect.

Biosystems engineering students from the University of Tennessee have been engaged in developing a river habitat map for the Obed River and the Big South Fork River to determine optimum habitat locations for endangered aquatic species. So how do they evaluate these habitats and determine what a stream bed looks like for the entire length of a river system? The answer is simple; you take a kayak and upgrade it with some high tech gear. They use a kayak that has been augmented with two video cameras mounted on the bottom to document the river bed, another video camera mounted on the top to help provide an above water video to reference the below water footage, a GPS system that attaches coordinates to each video frame, and a sonar system that also connects river depth data to the video frames. Of course, once the



scientists are done paddling, the less glamorous task of viewing the video and categorizing the stream characteristics begins.

What if you need data about the movement patterns of a small flying nocturnal animal? What if this animal happens to be a bat? There have been a few techniques used to track bats, such as hydrogen isotopes, genetic markers, and band recoveries (the last having been used extensively), but these methods do not provide information on individual



migration routes, stopover roosts, flight duration, or flight speed. To get this level of detail calls for an altogether different approach called radio-telemetry. This approach requires attaching a small radio-tag to a bat, and then it must be tracked once it starts its flight. Night tracking involves flying a small plane with a receiver to detect the radio-tags and follow the bats. Day tracking involves a ground crew attempting to find the roost tree the

bat is stopping over in on its migration. The night crew circles the cave the bat is staying in while waiting for it to emerge and then following the signal until it roosts for the night. The ground crew can then go back to where the bat stopped and use equipment to locate the exact tree being used by the bat as a roost.

Tracking bats can still be difficult, even with the radio-tags. This is due in part to the distances they cover. For instance, one Indiana bat, which

was tracked, flew 100 km (62 mi) before stopping to roost for the night. It then flew 96 km (60 mi) on the second night of its flight.

Another difficulty is that the radio-tags have a limited range from which they can be detected, and both the battery to power the radio-tag and the glue to affix it to the bat, have a life span of only a few days. Even getting the radio-tags on the bats can be more challenging with a growing concern about spreading white nose syndrome (WNS). To minimize the threat of spreading WNS, scientists decided against trapping bats at the entrance to caves. Instead, crews enter the caves in protective suits and hand capture the bats to attach the transmitters.

To learn more about some of the types of research that have contributed to the HCP check out the presentations on our website from this year's SAC annual meeting. There are several presentations from both the NCFRCHP day and the WRHCP day. You can find the presentations at: <http://www.cumberlandhcp.org/ScienceAdvisoryCommittee2010.html>

## Science Advisory Committee Update

The SAC (Science Advisory Committee) held its 5<sup>th</sup> annual meeting this fall at Cumberland Mountain State Park in Crossville, TN in October. This year's event covered two days, both of which were extremely well attended by experts in their respective fields. Each day consisted of presentations by researchers in the mornings followed by break-out sessions in the afternoons to help us tackle particular issues and gather scientific guidance. The results from the meeting can be found on the Cumberland HCP website at [www.cumberlandhcp.org](http://www.cumberlandhcp.org) under

Science & Research.

U.S. Fish & Wildlife Service (USFWS) field office staff in Cookeville were updated on the progress of both the NCFR and WR HCPs and their feedback is being used to aid in continuing the development of both HCPs.

The HCP and the scientific community are staying strongly intertwined. Trish Johnson, an HCP SAC coordinator, presented at the Tennessee Rare Mollusk Meeting in December to provide an update on the HCP and get input from the

experts in attendance to aid in the completion of the monitoring plan. SAC coordinator Sean Blomquist and Tennessee Tech University graduate student Katrina Smith presented at the Tennessee Herpetological Society meeting. An online survey on the WR and NCFR HCPs was also distributed to several SAC members, who then provided valuable feedback. Twenty-two participated in the WR survey on covered species, and fifteen completed the NCFR survey on the monitoring program.

## Hidden Gem of the Cumberlands: Cumberland Dusky

**By Special Guests: Laura Marsh (AmeriCorps) and Matthew L. Niemiller (UTK)**

Unknown to science until 2003, the rare Cumberland Dusky Salamander (*Desmognathus abditus*) makes its home in the shaded springs, streams and ravines of the Cumberland Plateau. This small, round-tailed lungless salamander was previously identified as the Mountain Dusky Salamander (*D. ochrophaeus*) until a detailed study by Jennifer Anderson and Stephen Tilley discerned that Cumberland Plateau populations were morphologically and genetically distinct.

The Cumberland Dusky Salamander has a scattered distribution along the margins of the Cumberland Plateau north and west of the Sequatchie Valley. This species has been documented from only Cumberland, Grundy, Morgan, and Rhea counties with the northernmost distribution lying just south of the Cumberland Mountains section of the Cumberland Plateau in Morgan County and the southern extent of its distribution occurring near Fiery Gizzard in Grundy County. However, the Cumberland Dusky Salamander is difficult to locate and its distribu-

tion is likely more widespread than currently known. Its scientific name even makes reference to the difficulty in finding this species, as the specific epithet, *abditus*, is Latin for "concealed" or "secret," referring to both the species' rarity in the field and remaining unknown to science until the 21<sup>st</sup> century.

Very little is known about the Cumberland Dusky Salamander. In an effort to better understand the ecology, life history, and distribution of this uncommon species, Matthew Niemiller and Laura Marsh from the University of Tennessee-Knoxville have been searching springs, streams, and seeps of the Cumberlands for this elusive salamander. They have discovered that the Cumberland Dusky Salamander prefers wet, rock faces near water sources as habitat and likes to hide under moss, leaves, and rocks in and around water.

The salamander has been documented on several state owned properties including Laurel Snow Pocket Wilderness (Rhea County), Ozone Falls State Natural Area (Cumberland County), Piney Falls State Natural Area (Rhea County), Stinging Fork Falls State Natural Area (Rhea County), and Frozen

Head State Park (Morgan County). The next time you are in one of these areas, look carefully and you might be able to find this well-hidden species!

Much more research needs to be conducted to gain a better understanding of the biology of the Cumberland Dusky Salamander. Since this species is endemic to the Cumberland Plateau, which means they are found nowhere else, it is crucial that State Wildlife Management Areas, State Natural Areas and State Parks remain protected, and that organizations such as Cumberland HCP exist to protect species, such as the Cumberland Dusky Salamander, for purposes of study. Conservation of the Cumberland Plateau will help researchers learn more about this special salamander, and hopefully continue to protect it

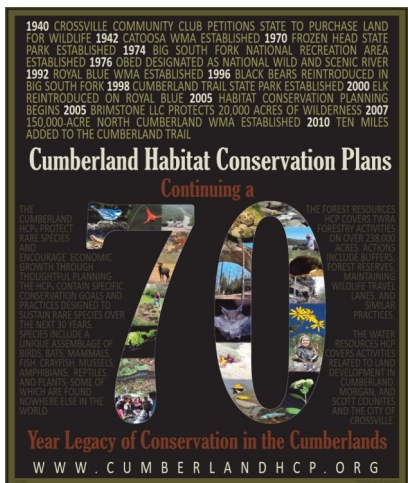


## WANT TO WIN AN HCP POSTER....OR MORE?

**Step 1**— Like us on Facebook.

**Step 2**— Get in touch with your friends and ask them to like us, too.

**Step 3**— When 10 or more of your friends have liked the Cumberland HCP, send an e-mail and we'll mail you an HCP poster like this one:



Have a lot of Facebook friends?

Get 25 or more of them to like the HCP and we'll send you an HCP t-shirt or totebag!

## Upcoming Events

### Alliance for the Cumberlands Annual Conference— February 23rd

The Alliance for the Cumberlands annual meeting will be held at Fall Creek Falls State Park on the Feb 23rd. This year's annual meeting will focus on the next generation and their vision for a sustainable Cumberland Plateau region. There is a \$25.00 fee per person. For more information contact Zeb Turrentine at (931) 372-6125 or to register visit the Alliance website: [www.allianceforthecumberlands.org](http://www.allianceforthecumberlands.org).

### Smithsonian Exhibit: Homestead Towers Association

From January 8th through February 20th the Cumberland Homesteads Tower Association (CHTA) and the Homesteads Tower Museum of Crossville, TN will present an exhibit called *Journey Stories* at the historic Homesteads Tower Museum. *Journey Stories* features the historic journeys Americans have made in forming America. The exhibit features images, audio, and artifacts highlighting the critical roles travel and movement have played in building our society, from the populating of the continent to the family vacation. The exhibit can be seen Monday-Saturday, from 8:30 a.m. to 4:30 p.m. CST and Sunday 1 p.m. to 4 p.m. For additional information visit [www.cumberlandhomesteads.org](http://www.cumberlandhomesteads.org) or call the Tower Museum at 931-456-9663.

### 10th Annual Tennessee Environmental Conference

This year's event, on March 15th and 16th in Kingsport, TN, "Improve Our Environment and Public Health through Smart Choices," will feature more than 50 presenters addressing the latest trends, practices and policies aimed at preserving our resources, balancing growth, improving human health and protecting the environment. Register online at <http://www.tnenvironment.com/home.aspx>

### The HCP Road Show:

Are you a member of an organization that would like to learn more about the HCP? We would be happy to share a presentation tailored to your group's interests and answer any questions you may have. Take a look at the HCP Road Show webpage (under press & outreach) and see if any of our presentations or handouts might be of interest to you. Schedule a presentation or find out more information by contacting Teresa Payne.

The Cumberland HCP Project includes state and local governments, state agencies, organizations, landowners, and other private citizens working together to address issues of growth and conservation of the forests and waters of the Cumberlands of Tennessee.

We'd like to hear from you! For more information about the Cumberland HCP contact Teresa Payne:

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