



Cumberland HCP

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ITEMS OF INTEREST:

- Thousand cankers disease brings firewood restrictions to Scott County.
- Crossville tile makers are implementing industry-leading sustainability practices.
- Draft covered species lists for the Water Resources HCP have been developed.

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Notes from the Water Resources HCP Director

As the new project director of the Water Resources HCP, I'd like to take this opportunity to introduce myself. Many of you may know me from the outreach work that I did early in this project or from my work on the Water Resources HCP activity accounts. Alex Wyss remains the Forest Resources HCP Director. This change is due to Alex's recent promotion to the Director of Conservation for the Tennessee Chapter of The Nature Conservancy. I am excited to work more closely with the HCP on a permanent basis. I look forward to the challenge of completing the

WRHCP with the staff and volunteers working on the project. Speaking of volunteers, I'd like to give a special thanks to all the scientists — over 100 individuals — who have donated their time and expertise to the HCP. As we prepare for the Science Advisory Committee annual meeting this year, I am reminded how important it is for us to have quality science supporting this project and how much we rely on the generous contributions of experts throughout the region.

Thanks for all that you do!
Katherine Medlock

Sustainability: Here, There, & Everywhere

Sustainability is a word often seen in reference to what we buy, what we eat, what we drive, and the actions we take. With "sustainability," or its counterpart "green," used so often in our daily lives, it is easy to forget what these terms mean. At its most fundamental, sustainability means making choices that ensure the long-term health of humans and the natural world. Much of the focus of sustainability is on the environment, but working to be good stewards of our environmental resources can simultaneously open new doors economically. Communities, businesses, and individuals on the Plateau are implementing

sustainable practices that make economic sense and protect our natural resources.

The City of Crossville is continuing to adopt new ideas to achieve a sustainable environment -economy balance. One of the City's progressive efforts is its biodiesel program. The City collects used vegetable oil and processes it into diesel fuel that is used to power school buses. Reusing a waste product for a useful purpose is at the core of sustainability. It is also sound from the economic side, too. Regular diesel costs almost three dollars a gallon. Crossville's biodiesel is produced for eighty

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Thousand Cankers Disease

Knox, Anderson, Blount, & Union counties are under a quarantine that prohibits the movement of all walnut tree products and firewood outside the counties in an effort to control the spread of thousand cankers disease (TCD).

Adjoining counties (including **Scott**) have been designated as buffer areas where the movement of walnut material and hardwood firewood are also restricted.

TCD is caused by a fungus spread from tree to tree by the walnut twig beetle. Once infected, TCD can kill a healthy walnut tree within 2-3 years. The risk represents a potential loss of \$1.37 billion statewide.

To contain the spread of TCD, state agricultural officials urge the following actions:

- Purchase firewood from a local source, and do not transport firewood, even within Tennessee.
- If someone comes to your home selling firewood, inquire about the source. If it's from outside your local area, do not buy their wood.
- Watch for signs of infestation in your black walnut trees. If you suspect your tree could be infested with TCD, visit the TN Dept. of Agriculture website below for an online symptoms checklist and report form or call 1-800-628-2631.

For more information about TCD in Tennessee, visit www.TN.gov/agriculture/tcd.

Water Resources HCP Update

The Water Resources HCP (WRHCP) Core Team focused their efforts this summer on covered species, covered activities, and the take model. These efforts were guided by input from the Water Resources HCP Steering Committee.

Steering Committee

The WRHCP Steering Committee met twice this summer: June 30th and August 25th. Discussion topics at the June meeting included an introduction to the take model approach, the covered species decision tree, and covered activities decision tree. These decision trees outline a series of steps that ultimately result in a draft list of covered species/activities. The Committee approved both decision trees by consensus. The August 25th meeting included a presentation on aquatic critters in the Cumberlands by John Johansen of TTU. Mr. Johansen reviewed selected species, their life history, and how their habitat needs at particular life stages are affected by changes in hydrology, water quality, and sediment in the streambed. Dr. Joe Daraio (HCP Team) reviewed

the basics of how these species-habitat linkages will be quantified (i.e. calculated) in the take model. Quantifying these linkages and predicting changes associated with future land use changes are two primary goals of the WRHCP take model. The decision trees and other Steering Committee meeting materials are available on the [website](#). The next Committee meeting is scheduled for Wednesday, October 20th in Wartburg. Contact Jennifer Gihring at jgihring@utk.edu or (865) 974-1955.

Covered Species

Over the summer, the Core Team compiled a database of documented species occurrences in the HCP planning area. These

records are primarily housed in the Tennessee Natural Heritage Database, maintained by TDEC, but the Team also added information from other sources. The Team then used the filters identified in the [Species Decision Tree](#) to develop draft lists of covered species for each jurisdiction. These were reviewed independently with the applicants and with the Steering Committee on 8/25. The Core Team is currently refining the list with additional information and to address questions from the applicants and Committee members. These lists will be in flux for some time, as refinements will also come from the take model. For example, detailed hydrologic information from the take model will allow the Team to customize species buffers to better reflect how far downstream land use changes impact species. Covered species list revisions will also come from the October Science Advisory



Committee meeting. See the SAC update on page 5 for more details. Ultimately, it will be up to each applicant to evaluate the draft list and determine which species they would like to

cover in their portion of the HCP.

Covered Activities

The selection of covered activities is based on the activity's location (now and over the next 30 years), whether or not the applicant has legal control over the activity, if the activity is likely to impact covered species or their habitat, and other factors outlined in the decision tree...all with feedback from experts. In the case of covered species, "experts" tend to be academic and government biologists, ecologists, and other scientific professionals. In the case of covered activities, the definition of "expert" is broader, including individuals such as builders and developers whose detailed understanding of how activities such as land

development occur can inform discussion of the implications of including a particular covered activity. Detailed evaluation of potential covered activities is an upcoming task for the Core Team and Steering Committee. As with covered species, each applicant has flexibility to decide which covered activities to include in the HCP.

Take Model

Drs. Joe Daraio and Evan Hart of the HCP Core Team have been developing the take model on a watershed scale. This summer, they made significant progress. The hydrologic model for the Obed and Clear Creek watersheds is complete. The hydrologic portion of the take model links precipitation and landscape features to stream flow. It allows us to predict changes in stream flow due to changes in land use. Given that the HCP is a multi-decade plan, the ability to predict future changes is critical. The model for the Daddy's Creek watershed is nearly complete. Remaining tasks for these watersheds include calibration – adjusting the mathematical relationships in the model to ensure that the model predictions adequately match measured flow data. Next steps include expanding the hydrologic model to cover the remainder of the planning area, making the next link between stream conditions, aquatic habitat, and species impacts, and incorporating terrestrial species components.

Liaisons

Congratulations to Kevin Dean (City of Crossville) and Erik Andelman (Morgan County) for being named HCP liaisons for their jurisdictions! Liaisons for Cumberland and Scott Counties will be named shortly. HCP liaisons facilitate participation from a broader group of applicant staff and interested parties, represent their jurisdiction on the Steering Committee, help research information for the Core Team, assist the HCP Team in working with elected officials, and otherwise enhance the applicant's participation in HCP development. Many thanks to Crossville Mayor Graham and former Morgan County Executive Ruppe for their support.

Photo: Green salamander found in Morgan County, TN, April 2010

Forest Resources HCP Update

FRHCP development over the past few months focused on the monitoring plan and take model. TWRA staff and the HCP Team met on August 5-6 to review these HCP elements in detail. In addition to the HCP Team, attendees included Bruce Anderson, Geoff Call, Bart Carter, Scott Dykes, Joe Elkins, John Gregory, Karl Kilmer, Kirk Miles, Brant Miller, Dwayne Robinson, Chris Simpson, Stan Stooksbury, Mark Thurman, Justin Walden, Greg Wathen, Pete Wyatt, and Kessler Yoder. This two-day meeting represented a significant time commitment on the part of TWRA. The HCP Team extends their thanks to all the participants for their attendance and intense discussion.

Take Model

On August 5th, meeting attendees reviewed the approach to calculating take, the model structure, how activities were modeled, and example modeling results. Many multi-species HCPs have been designed by determining how much take can be allowed before species viability becomes questionable and then using that threshold to design conservation measures. This approach results in conservation measures (CMs) focused primarily on mitigation. In development of the NCFRHCP, CMs were identified and the take model is being used to quantify and confirm the expected benefits of the conservation measures. This results in an HCP with CMs focused on avoidance and minimization of take during timber harvests, road construction and maintenance, and prescribed burning.

In the NCFRHCP take model, “take” is expressed as a change in available habitat: acres of habitat for terrestrial species and stream miles for aquatic species. Take of terrestrial species is based on the direct and indirect application of existing habitat models for eleven species. Take of aquatic species is based on sedimentation. After extensive literature searches, a threshold of 500 mg/L suspended sediment was established for aquatic species. The model calculates suspended sediment and the sediment transport capacity of a particular stream. When these factors combine to exceed the 500 mg/L sensitivity threshold for more than 30 days in the year, then take is assumed to occur. These calculations take into account the multiple factors that contribute to sedimentation: slope,

soil type, land cover, precipitation, activities, etc. In its current state, the take model allows the HCP Team to generate maps and tables that quantitatively compare take that would occur under alternative management schemes. This information is being used by TWRA to inform evaluation of CM effectiveness and will ultimately form the basis of USFWS’ evaluation of the HCP.

Monitoring

Discussions are ongoing among the HCP Team and TWRA regarding details of the monitoring program. Currently, the NCFRHCP monitoring program has three primary components: 1) tracking changes in habitat; 2) validating and improving the take model (sediment monitoring); and 3) tracking the population status of selected covered species. TWRA is evaluating the applicability of habitat quality metrics, monitoring protocols, the number and location of monitoring stations, and other details that were discussed on August 6th. Habitat, communities, and modeling aside, maintaining

viable populations of the covered species is the ultimate goal of the HCP. At a minimum, populations of the seven federally-listed species (Indiana bat, blackside dace, Cumberland elktoe, spotfin chub, purple bean, Cumberland rosemary, and Virginia spiraea) will be monitored to ensure that the HCP achieves this goal throughout its duration. All of the monitoring components will be linked together in an adaptive management framework that will allow TWRA to evaluate and possibly modify their CMs based on a growing body of information specific to the Cumberland WMAs.

TWRA and the HCP Team are refining the take model and monitoring plan based on information discussed at the August meetings. At the same time, the NCFRHCP document itself is taking shape. TWRA and the USFWS Cookeville office have completed their review of Chapters 1-5. Final decisions on the take model and monitoring components will be integrated into later chapters which should be out for review shortly.

HCP Spotlight: Erik Andelman

Do you know anybody who has been around the world? Now you do! Erik Andelman served as Morgan County’s Litter Prevention Coordinator and then Recycling Program Supervisor from 2004-2010. Prior to moving to Morgan County, Erik lived a nomadic life. A year as a software engineer in Palo Alto, California, a year of rock climbing and yoga in India, a few months cycling from Switzerland to Kosovo, and then casting about the U.S. looking for the right place to settle down. As an active rock climber (“bouldering” for those of you in the know), Erik found that the combination of world-class climbing, affordable living, friendly people, and beautiful surroundings in

Morgan County made it feel like home.

As Recycling Supervisor, Erik worked to keep Morgan County beautiful and involved residents in that effort. Erik expanded recycling in the County and organized roadside litter pick-ups, community clean-ups, and the annual Potters Falls Clean-up events. Every summer, Erik leads a two-week summer rock-climbing camp for public school students. During

this camp, which he has led for five years, he shares his favorite spot with the students — Lilly Boulders. This camp is just one

of many ways Erik puts his personal philosophy into action: “A person has to enjoy something before they will begin to care enough to conserve it.”

The HCP Team extends a big “thank you” to Erik for his hard work. His deep personal commitment to the natural beauty, community, and environment in

Morgan County comes through in all aspects of his work, including the HCP.



Sustainability *(cont. from page 1)*

cents. The bio-diesel program is a win-win program for everyone involved.

Crossville has installed LED traffic lights, which use considerably less energy. The City is promoting other forms of transportation by building more sidewalks and cross-walks and adding bike lanes (check out Hwy 127 South and Lantana Road). Helping inform people is also a part of the city's

initiative by hosting the annual Sustainability Fair. Additional projects are in the works, such as an urban forestry plan, public gardens, and, of course, the Cumberland HCP.

The City recognizes businesses that go the extra mile to achieve higher levels of sustainability. CoLinX, a warehousing and logistics company, was the first recipient of the Crossville Green Partners award. CoLinX received this award for their voluntary changes that have reduced energy consumption and increased internal recycling of materials. CoLinX switched to energy efficient fluorescent lights and installed motion detectors throughout their building to save energy. A particular challenge at CoLinX is the high ceiling of the warehouse, which makes it difficult to efficiently heat and

cool. Large slow-rotation fans were installed to circulate air from the high ceiling of the warehouse — particularly helpful in the winter. Corrugated cardboard from incoming

shipments is processed in-house and then used as packing material for out-going shipments. Change is in the air for employees as well. Warehouse managers use pedal-power (tricycles) to move around the complex, instead of electric carts. Workers are encouraged to save energy by turning off unused electronics like computers, radios, and machinery. Each of these efforts may seem small individually, but they add up to big energy savings and more sustainable business practices at CoLinX.

Did you know that Crossville-made products help make “green building” possible? StonePeak Ceramics manufactures tiles made from recycled materials. According to [StonePeak](#), “In 2008 alone our recycling efforts allowed us to reuse, and therefore conserve, approx. 6 million gallons of water and 12,500 tons of raw materials.” Another local tile-maker, [Crossville, Inc.](#), uses recycled materials to produce tiles that require 80% less raw material and natural gas to produce and deliver versus masonry brick. Crossville, Inc., has also implemented a ground-breaking [tile recycling program](#) through which they accept discarded, damaged, or removed tile from the public and recycle it alongside their own materials. These efforts allow local tile-makers to market their tiles as specialty products in the green building industry.

Using resources efficiently works at home, too. Since 2008, the Obed Watershed Community Association has sold nearly 500 rain barrels to water-

conscious community members. Even the City has a rainwater collection system at City Hall that they use to irrigate landscaping. Besides saving water, rain barrels save money by avoiding the need to pay for potable water.

Using rainwater on landscaping is one thing, but reusing wastewater? If you are skeptical, look no further than Lake Tansi to see it in action. Since 2008, the community has been managing a reclaimed water program in which wastewater is treated, discharged to Lake Hiawatha, and then used to irrigate the golf course. Over 26 million gallons of treated wastewater is used for irrigation every year. Economically, the program saves the Tansi golf course money on potable water and maintains a high quality course—they even won the 2008 People's Choice Award for “The Best Golf Course in Cumberland County.” Wastewater reuse is a progressive and sustainable practice being implemented on the Plateau. (see the 2009 [TN Wastewater Reuse Inventory](#) for information about the handful of other utilities that repurpose treated wastewater).

Sustainability is a concept that is going mainstream on the Plateau. It is not always about making sacrifices that negatively impact our lives. On the contrary, sustainable practices are often good for both the environment and the pocketbook. The Plateau is well known for its biological diversity. The examples of sustainable practices highlighted here demonstrate several ways that Plateau communities, businesses, and residents are caring for these precious natural resources.

CROSSVILLE GREEN PARTNERS AWARD

The Crossville Green Partners Award was started by Mayor Graham as a way of drawing attention to businesses that take extra steps towards becoming more sustainable. CoLinX was the first to receive this award in August 2010. Wal-Mart was the September recipient.

Photo: Mayor J.H. Graham III & Wade Ledford, CoLinX Eng. Mgr.



WHAT IS “GREEN BUILDING”?

Green building is the practice of designing and constructing builds that use resources efficiently and limit environmental impacts. One of the most well known rating systems is LEED, which is an acronym for Leadership in Energy and Environmental Design. Within the LEED system, a building qualifies for points in several categories, such as site selection, water efficiency, energy use, and building materials (like the StonePeak and Crossville, Inc. tiles). See the US Green Building Council website for more information: www.usgbc.org.

HOW YOU CAN HELP

Check out the following links for information about sustainability and simple changes you can make to with future generations in mind:

- www.epa.gov/sustainability
- www.ecy.wa.gov/sustainability/whaticando.html
- solar.tennessee.edu
- picknproducts.org
- iwantabetterhouse.com
- www.greenernashville.org
- www.nrcs.usda.gov/feature/backyard/index.html

Science Advisory Committee Update

Integration with the broader scientific community is one of the key strengths of the Cumberland HCPs. In July, Katrina Smith (TTU) and Dr. Sean Blomquist (HCP Science Coordinator) presented research at the Joint Meeting of Ichthyologists (fish biologists) and Herpetologists (reptile & amphibian biologists). Katrina presented information about the Black Mountain salamander, and Sean presented information about sediment modeling in the Forest Resources take model.

The 5th annual Science Advisory Committee (SAC) meeting is scheduled for October 26th & 27th at Cumberland Mountain State Park. As mentioned in the Water Resources HCP update (see page 2), the HCP relies heavily on the professional judgment of experts to

develop HCP components and confirm that the Team and Applicants are using the best available science. The annual SAC meeting brings together a broad range of experts, from bat biologists to plant ecologists and Endangered Species Act specialists, to present the results of recent and ongoing research and discuss HCP-specific questions. Past meeting materials are available on the [SAC page](#) of the HCP website. The SAC decided to expand this year's meeting to two days, providing a full day to discuss each of the two ongoing HCPs. Contact [Sean Blomquist](#) with questions.

In preparation for the meeting, the HCP Team distributed surveys to nearly 100 species experts. The surveys allow us to

involve a broader range of experts than just the individuals who are able to attend the in-person meeting. Participants include agency scientists, academic scientists, nonprofits, private consultants...even the Florida Museum of Natural History! The Forest Resources HCP survey focuses primarily on evaluation of the draft monitoring framework – sampling methods, appropriate metrics for each species, clarity of the document itself, etc. The Water Resources HCP survey focus on species issues – threats to the long-term viability of the species, the presence of species that have not been documented in decades, species-community-habitat affiliations, etc. Results of the survey will guide discussions at the SAC meeting and beyond.

Featured Species: Spotfin Chub

Chances are even if you have lived on the Plateau your entire life, there are some species you've never seen. The spotfin chub (*Erimonax monachus*) is such a species. It is a small fish with a compressed body that is about 3 inches long as an adult. Spotfin chub, sometimes called the turquoise shiner or turquoise chub, feed primarily on insects at the stream bottom. To the average eye, this fish may resemble a minnow. However, unlike more common fish, spotfin chub are very unaggressive in their feeding habits, which does not help its survival in a shrinking habitat.

Spotfin chub populations have been very low for decades. It was listed as a federally threatened species in 1977 and has remained on the threatened list ever since. What makes this little fish big news is that there are only six existing populations of spotfin chub in about 100 miles of the Little Tennessee River (North Carolina), the Duck and Emory Rivers (Tennessee), and the North Fork of the Holston River (Tennessee and Virginia). In addition to this limited total range, these streams are disconnected, meaning that spotfin chub in the Cumberlands have no way of reaching the spotfin chub in North Carolina to come in and reproduce.

In Tennessee, several practices have been specifically identified as threats to the future

viability of spotfin chub. These include impoundments (i.e. dams and reservoirs), channelization, pollution, turbidity or siltation, temperature change, commercial collection, and competition with other species. Spotfin chub are particularly vulnerable to activities on the land that increase silt on the streambeds where they feed and reproduce.

Within the HCP planning area, spotfin chub habitat is found in the Emory River, Clear Creek, Daddy's Creek, and the Obed River (upstream to Hwy 127).

Projects are underway to increase spotfin

chub populations through reintroduction. Along with the endangered duskytail darter, the endangered smoky madtom, and the threatened yellowfin madtom, the spotfin chub

was reintroduced to the Tellico River (Monroe County, TN) through a cooperative project among the U.S. Fish and Wildlife Service, U.S. Forest Service, TN Wildlife Resources Agency, and

Conservation Fisheries, Inc. The Tellico River was chosen as the initial reintroduction site because these four species were present there before the construction of reservoirs on the main stem of the Little Tennessee River. Wild reproduction was observed in the Tellico River for the first time in 2006. Other reintroduction projects are underway within the historic range of the spotfin chub.

HCP conservation measures such as construction site erosion control, timber harvest best management practices, proper road construction and maintenance, and riparian buffers can limit siltation in streams



and support spotfin chub populations. Through a combination of reintroduction projects and conservation projects like the HCP, the spotfin chub may one day recover to the point where it no longer needs protection under the Endangered Species Act.

UPDATED WHITE NOSE SYNDROME MAP

The Pennsylvania Game Commission updated the white nose syndrome occurrence map in June. The updated map shows the confirmed cases in Tennessee and emphasizes the continued spread of white nose syndrome across the United States and Canada. The map can be downloaded from the U.S. Fish and Wildlife Webpage: www.fws.gov/whitenosesyndrome.

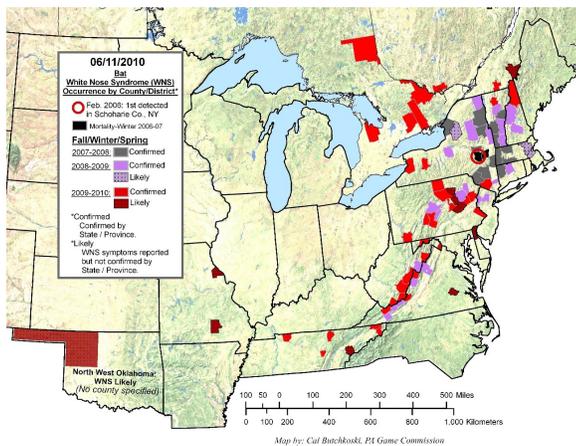


Photo credits:

Page 2: Alex Wyss, *The Nature Conservancy*

Page 3: Erik Andelman, *Morgan County*

Page 4: *Crossville Chronicle*, August 20th, 2010

Page 5: Virginia Tech, www.cnr.vt.edu/efish/families/images/jpegs/spotfin.jpg

Page 6: USFWS, www.fws.gov/whitenosesyndrome

Upcoming Events

Alliance for the Cumberlands Fall Meeting—November 9th

The Alliance for the Cumberlands fall meeting will be held on November 9th at the J&S Construction headquarters in Cookeville. Come and enjoy presentations on sustainable business practices that are being implemented across the Cumberlands. For more information or to RSVP, contact Zeb Turrentine at (931) 372-6125 or visit the Alliance website: allianceforthecumberlands.org.

Obed Watershed Community Association (OWCA) News

The OWCA is sponsoring a talk by John Johansen, TTU, on Stream Ecology of the Obed system. John will speak on October 5th at 5 PM at Common Ground, 405 W. 4th St., Crossville. All are welcome.

The OWCA will celebrate its 5th anniversary at their Annual Meeting on October 14th, 6 PM at Common Ground. In addition to awards and elections, Kathleen Williams of the Tennessee Parks and Greenways Foundation will give a short presentation. For those who want to learn more about conservation easements, Kathleen will hold a pre-meeting workshop at 5 PM.

The OWCA always has opportunities for community members to help keep the Obed system healthy. Three workdays are typically held each week. Volunteers can come at their convenience and spend as much time as they are able to contribute. Contact Dennis Gregg at (931)484-9033 or (931) 210-3611 to participate.

American Trails National Symposium

Every two years, American Trails, Inc. presents the American Trails National Symposium to highlight what is happening with all types of trails. The Symposium emphasizes the contributions of volunteers, professionals, businesses, government agencies and other leaders who are working to create trails for the public to enjoy. The Symposium is November 14-17, 2010 and will be held at the Convention Center in Chattanooga, TN. See www.americantrails.org/2010/index.html for more details.

Did you know...

...even though the Great Smoky Mountains National park is known for plant diversity, the northern Cumberland Plateau actually has **more** woody plant species? (contact the [HCP Team](#) for details)

...the Cumberland Trail section at Black Mountain (near Crab Orchard) is easily accessible and provides excellent views of fall foliage? (see www.tennessee.gov/environment/parks/CumberlandTrail)

...music from the “Traditional Music of the Cumberland Plateau” CDs and interviews with some fascinating Plateau musicians are available from www.downhomeradioshow.com? (search for “Cumberland Plateau”)

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.

Check us out on the web: www.cumberlandhcp.org

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