



# Naturally Kentucky


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**KSNPC Latest News:** *Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity* is now available. The commission's latest publication is a comprehensive overview of the state's biodiversity with a foreword by Wendell Berry. (complete story on Page 2).

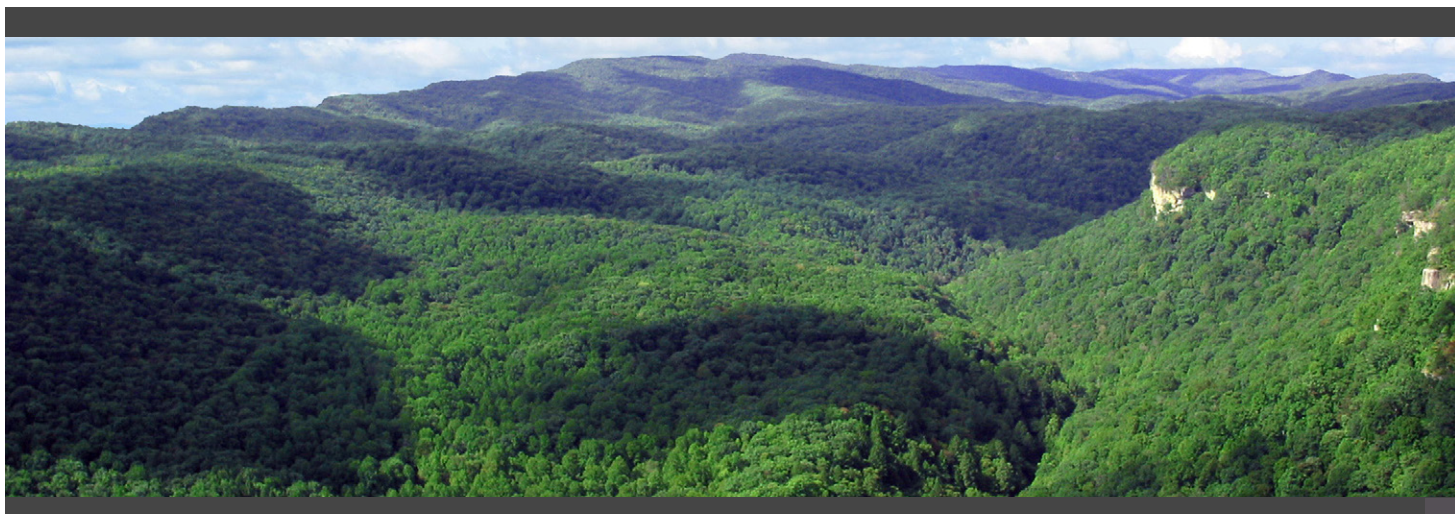
 Cumberland Plateau cave crayfish is a newly described species that is one of the rarest crayfishes in North America, known from a handful of caves along the Kentucky – Tennessee border (complete story on Page 4).

 As of this spring a total of 25,308 hemlock trees have been treated at Blanton Forest, Bad Branch, Martin's Fork and Stone Mountain (complete story on Page 11).

 Ecologist Martina Hines was selected to participate in the NatureServe Leadership Program. The year-long program is building a foundation for future leadership roles in the natural heritage program. Only 20 candidates were chosen from among international applications.

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Wehrle's salamander ~ John R. MacGregor

# Kentucky's Natural Heritage

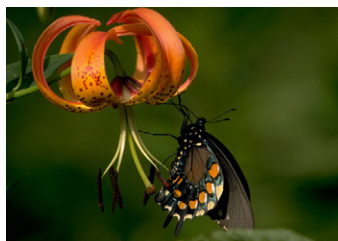
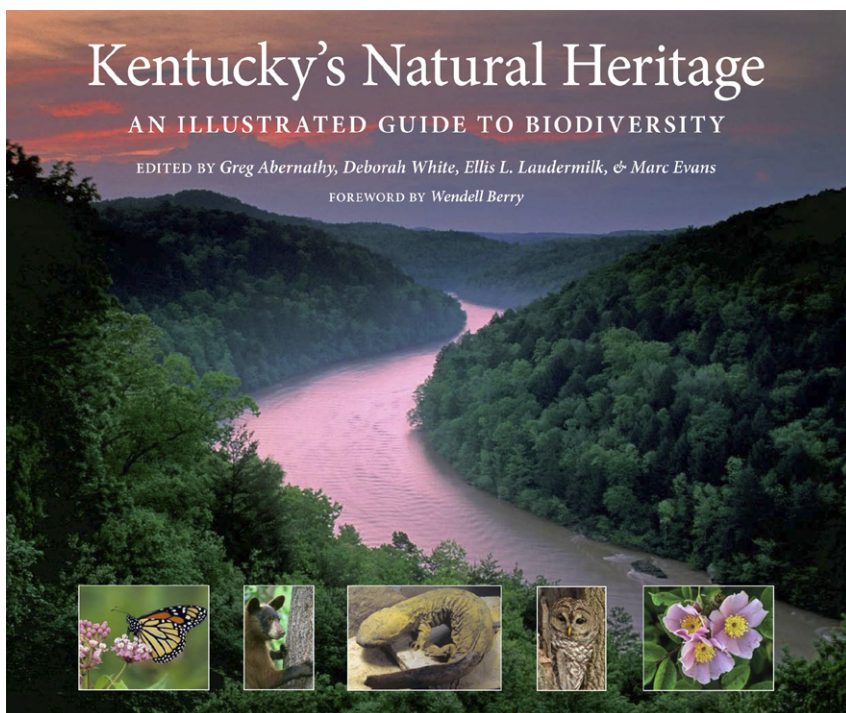
The diversity of life on our planet is astounding. From the lush rainforest of the Amazon to the seemingly barren arctic tundra, there is an abundance of life—and Kentucky is no exception. The state has a natural diversity of life so rich and complex that reality challenges the imagination. Fascinating and spectacular plants and animals such as the rainbow darter, golden mouse, cobra clubtail, three-birds orchid, and tiger salamander aren't found in the Amazon; they live among us in the remarkably rich prairies, rivers, and forests of Kentucky, along with thousands of other species.

In Kentucky over 19,000 unique and interesting species form natural communities across the state and collectively represent the environmental support system upon which we depend. Several animal groups in the state are remarkably diverse. Salamanders, aquatic organisms, and cave-dwelling species attain some of their highest levels of diversity in the nation.

The state's geologic history and the resulting physical landscape have helped to shape its biodiversity. Located at a midlatitude of the North American continent, Kentucky has a temperate climate and is situated among several distinct ecoregions. Northern, southern, and midwestern influences are evident in the flora and fauna found here. A 12,000-year history of human activity in Kentucky has greatly influenced the state's biodiversity. Since European American settlement, human

impacts have escalated until they now threaten many of the state's species and natural communities.

An understanding and appreciation for the wildness upon which we depend is essential to maintaining and preserving this rich natural heritage we collectively share. It is with the publication of *Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity* that we hope to instill such an appreciation in the citizens of the Commonwealth of Kentucky.



Turk's cap lily & Pipevine swallowtail  
~ photo by Thomas G. Barnes



Griffith Woods  
~ photo by Neil Pederson



Big brown bat  
~ photo by John MacGregor





Now available:

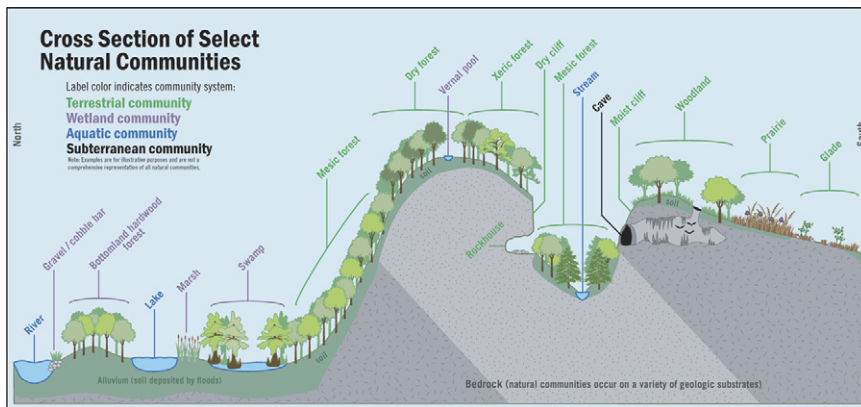
## Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity

The idea of publishing a comprehensive overview on Kentucky's biodiversity has been with the commission since its establishment in 1976. The availability of high quality biodiversity data coupled with a group of skilled, talented and diverse staff put KSNPC in a unique position to begin writing such a book several years ago. We are pleased to announce the release of the book; copies are available from KSNPC, University Press of Kentucky and most bookstores throughout the state.

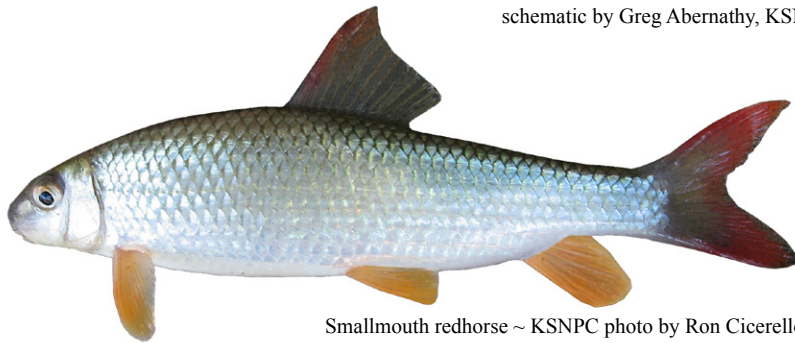
From the Foreword by Wendell Berry:

A publication and an event of inestimable significance...No other book that I have read has helped me so much to think about the land of Kentucky, of the reciprocity of influence and the sharing of fate between the land and ourselves...It gives us a competent sense of the state's native health and abundance before European settlement, of what and how much we have lost or wasted or used up, and of what is left—differences heartbreaking to think about.

### Selections from Kentucky's Natural Heritage



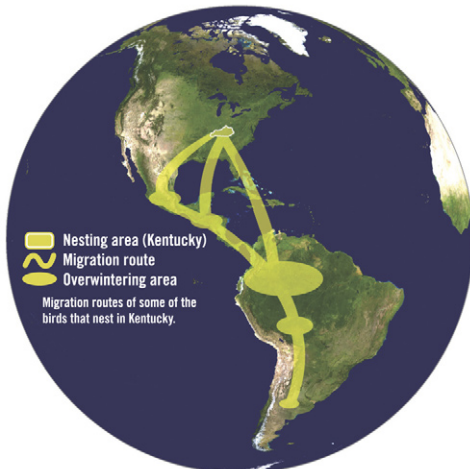
schematic by Greg Abernathy, KSNPC



Smallmouth redhorse ~ KSNPC photo by Ron Cicerello



Gulf fritillary ~ photo by Thomas G. Barnes



Kentucky Warbler ~ photo by Steve Maslowski



# NEW DISCOVERIES IN DARK PLACES — Kentucky Cave Crayfishes

By Ryan Evans, Aquatic Zoologist

A newly discovered crayfish, recently listed as endangered by the Kentucky State Nature Preserves Commission, was under our nose the whole time. Underground, that is. The research of Drs. Jen Buhay and Keith Crandall from Brigham Young University uncovered the Cumberland Plateau cave crayfish (*Orconectes barri*), a species that had previously been within a group of other cave crayfishes. DNA analysis of specimens by Drs. Buhay and Crandall revealed the genetic fingerprint unique to this species. Their research also confirmed that this species was distinct from another species endemic to Kentucky, the Appalachian cave crayfish, which is globally known only from Rockcastle and Pulaski counties (Taylor and Schuster, 2004).

Cave crayfishes are similar in some ways to stream dwelling species as they are generally scavengers but will act as a predator on smaller organisms. Although they sometimes get flushed out of a cave during flooding conditions, these animals generally spend their entire lives in underground stream cave systems.

The newly described species now becomes one of the rarest crayfishes in North America, known from a handful of caves along the Kentucky – Tennessee border (Buhay and Crandall, 2008). One of the factors that often drive this sort of diversity is long periods of isolation. The Cumberland Plateau is a hotbed of species biodiversity as a result of this phenomenon. Glacial advances from the north, which last receded about 12,000 years ago (Sevon and Fleeger, 1999), fundamentally altered stream and cave patterns in large portions of the midwestern and northern United States but didn't reach the southern Appalachians. During periods of rising ocean levels, which covered parts of the southern United States during the Cretaceous Period, (including areas of Kentucky along the Mississippi River into southern Illinois; Burr and Page, 1986), the southern Appalachians were not affected. As a result, the southern Appalachian mountain region has developed many unique fishes, crayfishes and other species found nowhere else on earth as a result of a slow and gradual process of evolution.

It is believed that cave crayfishes colonized caves from surface stream sources (Barr, 1968), perhaps as a means of exploiting an available habitat or perhaps moving into an environment with lower competition for resources. In the case of these *Orconectes* crayfishes, they may have been part of an ancient crayfish lineage that predominated in sluggish, meandering streams (Hobbs and Barr, 1972). A geologic event, such as uplift in the late Pliocene or early Pleistocene period, could have caused those stream conditions to disappear in favor of swifter flowing streams (Barr, 1968). By that point, cave environments might have been one of the only areas available to these crayfishes.

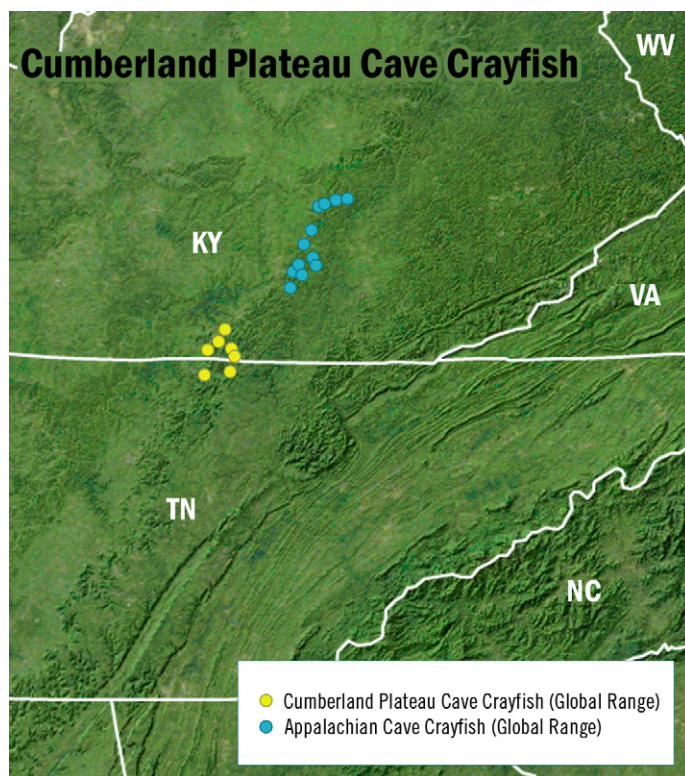
Once these animals became isolated and cut off from gene exchange with surface species, adaptation to their new environment began. In this case, cave crayfishes reduced the size of their eyes, developed smaller claws, or chelipeds (to better scavenge small bits of organic matter or decay from other organisms), and lost their exoskeleton pigmentation giving them a ghost-like appearance today. These adaptations serve to

divert precious energy resources into survival and reproduction within the austere underground environment.

The discovery of the Cumberland Plateau cave crayfish is part Indiana Jones movie and part biology lab. With the help from several Kentucky cavers, tissue specimens (generally a claw or leg) were collected from several cave sites in Clinton and Wayne counties as well as several caves in Tennessee. The next step was to run tests and compare the DNA from crayfishes of the same genus (*Orconectes*) from caves from across the southern Appalachians. As you can see from the map, this research has revealed some patterns in Kentucky. It clearly shows that we have two distinct species, both of which are known globally from only *five* counties!

The environments of caves derive their water and food items from outside sources. Bats, for instance, fly out in the evenings to feed on insects. This indirectly provides food sources for the cave in the form of bat guano. As unpleasant as that sounds, it is nonetheless an important source of nutrients that are used down through the food chain. Food resources also wash into the cave from aboveground flow in the form of woody debris, leaves, bits of organic matter, etc.

In short, the delicate balance of this ecosystem depends on the quantity and more importantly, quality, of the resources entering them. That is why it is so important in karst areas (where there are sinkholes or waters that flow underground from the surface) that toxic items such as pesticides and petroleum products are carefully managed. ☞





# VACUUMING THE *Glades*, SWEEPING THE *Prairies*

By Joyce Bender, Nature Preserves and Natural Areas Branch Manager

This spring, I participated in a very interesting research project at Jim Scudder and Thompson Creek Glades State Nature Preserves (SNP). Dr. Chris Dietrich, with the Illinois Natural History Survey, had a contract with the commission to sample leafhoppers and related members of a diverse group of sap-sucking insects that includes spittlebugs and planthoppers. Many of these insects are found in grasslands and some are reliant upon specific plant species for their food. Their requirement to feed on certain grasses or forbs limits their distribution in Kentucky, and the fact that some species aren't very mobile makes them very susceptible to changes in their habitat. Many are also considered fire sensitive because some aspect of their life cycle puts them at risk. For example, they may lay eggs that over winter in leaf litter that can be destroyed by spring burns.

The commission uses prescribed fire to maintain open habitat for rare species and natural grassland communities such as glades and barrens. With the help of a number of experts, we have been studying the effects of fire on insects that are dependent upon the remnant grassland systems. They are called remnants because they are small and widely scattered across a fraction of the acreage that they occupied prior to European settlement. Fire is a beneficial tool, but its use must be balanced with the needs of the preserve's inhabitants. To better understand the impacts, we need to know who is out there. This is where Dr. Dietrich comes in.

He had already visited Eastview Barrens and Springhouse Barrens SNP's with Ellis Lauder milk, the commission's invertebrate zoologist. Our next stop was Jim Scudder SNP in Hardin County. He loaded up his gear for the hike in, and I took note of the leaf blower and sweep net he was carrying, along with a homemade contraption holding bottles. When we arrived at the glades, he explained the leaf blower had a vacuum function and promptly walked a transect across the grassy slope, turning it on and off in a timed fashion. I was fascinated when he came back and emptied the mesh bag that covered the intake nozzle. Once released from the bag, lots of tiny insects and spiders started climbing the sides of the sample bottle. Dr. Dietrich squinted at the contents and named a few leafhoppers easily identifiable to him. He repeated this process across the glade openings, placing the vacuum's tip at the base of grass and forb plants which is where the majority of insects he sought are feeding.

He also employed the sweep net in areas where the vegetation was not as dense to be sure he captured a representative sample. This



Dr. Chris Dietrich using a bug vac ~ photo by Dmitry Dmitriev

effort did yield some different insects, but the sample size seemed small by comparison. Next, we visited Thompson Creek SNP in Larue County and he repeated the process. It struck me as funny watching him vacuuming his way across the glades with a power tool I normally cringe to hear. I have a new appreciation for the vacuum and for the clever resourcefulness of scientists in pursuit of knowledge.

Dr. Dietrich's results were encouraging regarding our burning regime. The presence of a number of moderate to highly conservative species, those requiring specific food plants or having limited mobility within these remnants, indicates that we are maintaining conditions appropriate to sustain their populations. Our planned burn rotations and unit configurations appear to be sufficient for the insects to disperse back into burned units from adjacent unburned refugia. We appreciate the work that Dr. Dietrich did for us this June. Combined with information gathered previously on other insect groups, we now have an even better idea of the species we must plan for and around when developing management plans for our fire-maintained preserves. 🐞



Rare planthopper restricted to high quality barrens habitat ~ photo by Adam Wallner





## In the Spotlight: *Coastal Plain Forested Acid Seep & the Blood River*

In Kentucky, the Coastal Plain Forested Acid Seep is one of the state's most unique and rare natural communities (KSNPC-listed as state endangered), with nearly all remaining examples of this type found along the Blood River in Calloway County. Outside of Kentucky, this community is only known to occur from a few locations in western Tennessee and southern Illinois. Limited in range and occurring under specific geology, soils and hydrology, this community is listed by NatureServe (the national authority on the status of rare species and natural communities) as globally imperiled (=G2G3). NatureServe describes threats to this community as "... threatened by siltation resulting from upslope timber removal. Adjacent upland development would alter the supply of groundwater and would impact the distinctive hydrology of this community."

The Coastal Plain Forested Acid Seep is an unusual type of wetland community that has saturated soils often year-round, with characteristic beds of ferns and sphagnum moss. Along the hills of the Blood River corridor, this community is found near the base of dry, hardwood-dominated slopes where water continually percolates (or seeps) through sands and gravels. Occurring mostly on flat to gentle slopes, the seeps are poorly drained with mucky, acidic soils. They occur just above more extensive wet to mesic bottomland hardwood forests that lie along the Blood River. The canopy is nearly closed and includes typical wetland trees like water tupelo, blackgum, sweetgum and red maple. Subcanopy species include green ash, musclemo, red maple and swamp chestnut oak. The shrub layer includes distinctive wetland species like Piedmont azalea, possumhaw, Virginia sweetspire and winterberry. The ground layer is also distinctive with healthy mats of netted chain fern, prickly bog sedge, weak stellate sedge, lizard's tail, cinnamon fern, royal fern and often carpets of sphagnum moss. Many of these species in the shrub and ground layer are rare or infrequent in Kentucky, usually restricted to high-quality wetlands.

This matrix of wetlands along the Blood River creates environments suitable for unique wetland-dependent species found nowhere else in Kentucky, and a few found nowhere else in the world. Rare species known to occur along the Blood River (but not highlighted below) include the gray bat, central mudminnow, western mud snake, three lined salamander, threadleaf mock bishop-weed, sweetscent ladies' tresses and Nuttall's oak. From the endemic populations of the Blood River crayfish (found nowhere else on earth) to large nesting populations of great blue herons, the area's seeps, swamps, sloughs and streambeds are unmatched

in Kentucky, supporting one of the most biologically rich areas in the state.

The Blood River is far from pristine. With hydrologic changes from the creation of Kentucky Lake, ditching projects throughout the upper Blood River and continual logging activities, most areas have been altered from their natural state. KSNPC is working to protect the most sensitive, least-disturbed areas left in the Blood River system, focusing on the seeps that have high densities of rare species and the lowland forests and swamps along the Blood River that buffer habitat for the Blood River crayfish and other unique aquatic species.



Sphagnum moss and netted chain fern are characteristic plants of the Coastal Plain Forested Acid Seep community ~ photo by Ellis Lauder milk, KSNPC





## *Blood River Crayfish* *Orconectes burri*

KSNPC STATUS: Endangered

USFWS STATUS: None

GENERAL DESCRIPTION: A boldly marked crayfish up to 2.5 inches total length.

HABITAT: Small creeks to small rivers in woody debris or undercut banks.

RANGE: Blood River watershed in western Kentucky.

REASON FOR PROTECTION STATUS: Although this species is not in imminent risk of extinction, a highly restricted distribution places it at-risk from poor land use management or habitat degradation from stream alteration.



Photo by Ryan Evans, KSNPC

## *Hoary Azalea* *Rhododendron canescens*

KSNPC STATUS: Endangered

USFWS STATUS: None

GENERAL DESCRIPTION: This shrub is in the heath family (Ericaceae). The flowers are usually pink, sometimes white and they appear before the leaves in the early spring.

HABITAT: Moist to wet woods of the coastal plain.

FLOWERING PERIOD: Early March to mid-May.

RANGE: Southeastern United States.

REASON FOR PROTECTION STATUS: In Kentucky, Blood River is the only place where this shrub is found. The habitat for hoary azalea is declining due to stream/wetland alteration, vegetation removal, and exotic pest plants.



Photo by Dennis Horn

## *Osmunda Borer Moth* *Papaipema speciosissima*

KSNPC STATUS: Endangered

USFWS STATUS: None

GENERAL DESCRIPTION: Adult moths with orange and light brown forewings and cream to light orange-brown hindwings. Forewings have a few small white spots typical of Papaipema species.

HABITAT: Seeps supporting the foodplant(s).

LARVAL FOODPLANT: Osmunda ferns, especially cinnamon fern and royal fern.

FLIGHT SEASON: Late September through the middle of October.

RANGE: Eastern North America from Ontario to Florida.



Photo by Ellis Laudermilk, KSNPC





# Invasive Species Highlight: *Japanese Stiltgrass*

## *Japanese Stiltgrass*

*Microstegium vimineum*

**DESCRIPTION:** A shade-loving annual plant in the grass family. It is low-growing and can form dense mats. Leaves are alternate, typically slender, 1 to 4 inches long, and have a stripe of silvery hairs down the middle of their upper side.

**ORIGIN:** Native to Asia, stiltgrass seed was used as packing material for porcelain and is thought to be one vector for its establishment and spread in the United States. It was first documented invading natural areas in Tennessee around 1919.

**EXTENT IN KENTUCKY:** Recorded from 72 counties, it is considered widespread throughout Kentucky. It is found in a variety of habitats including stream banks, river bluffs, floodplains, forested wetlands, moist woodlands, early successional fields, uplands, thickets, roadside ditches, utility corridors, lawns and gardens.

**IMPACT:** Its adaptability and versatility in a variety of conditions make it particularly threatening. Its long seed viability means that control methods must be repeated annually for at least seven years. Seeds from one plant can re-colonize an entire area. On fertile mesic sites, *Microstegium* can replace competing ground vegetation within three to five years.

**MANAGEMENT:** For small populations, hand-pulling is an acceptable control method. Plants should be pulled late in the summer. Plants with flowers or seed heads should be bagged to prevent additional seeds entering the seed bank.

Mechanical control is effective for small or large populations. Use a string trimmer or mower to cut the plants as close to the ground as possible. Cutting should be done when the plants are in flower before seeds are produced or in early August. Plants cut any earlier may have time to produce new seed heads in the axils of lower leaves.

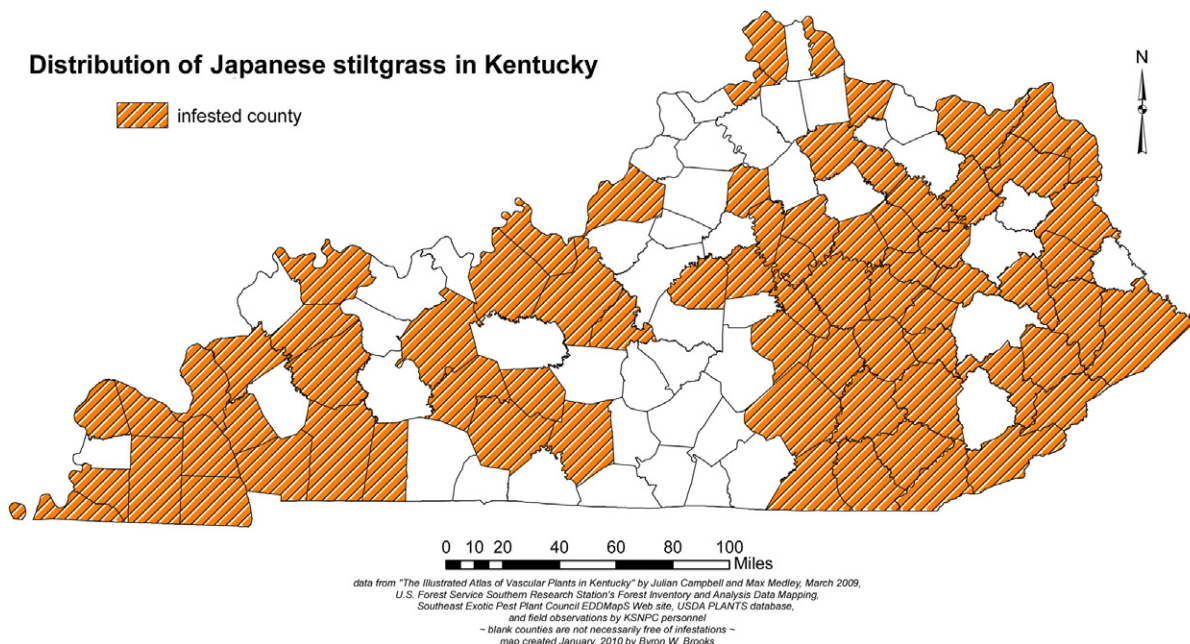
Herbicide treatments may be applied late in the growing season before the plants set seed. As a foliar treatment, apply a 2 percent solution of glyphosate (Roundup) and water to all foliage until it is wet. Do not apply if rainfall is expected within two hours following application.

To be effective, the above treatments must be repeated annually for at least seven years to deplete the seed bank.

**ADDITIONAL INFORMATION:** Visit [www.nps.gov/plants/alien/fact/mivil.htm](http://www.nps.gov/plants/alien/fact/mivil.htm) to learn more



Photo by Chuck Barger, Bugwood.org





# Exploring the Elkhorn

By Deborah White, Senior Botanist

A group of weekend nature-lovers discovered a whole new way of looking at the Elkhorn Creek on July 17. With one big and two small seines, Ryan Evans, aquatic zoologist for the commission and volunteer Joyce Fry, biologist from the Kentucky Division of Water, revealed an astounding diversity of species in a short stretch of the creek. With every dip of a net, different animals like water pennies, tadpole physa (*Physa gyrina*, a type of freshwater snail) and rainbow darters (*Etheostoma caeruleum*) surfaced. Water pennies look like minicoin and are a young beetle (larvae) that feed on algae. At least three damsel flies, including the American rubyspot (*Hetaerina americana*), flitted over the water.

Over a dozen different fishes were found - a small sampling of the total fauna. Some of these, like the smallmouth bass (*Micropterus dolomieu*) and creek chub (*Semotilus atromaculatus*), were familiar and others like the mimic shiner (*Notropis volucellus*), bluntnose minnow (*Pimephales notatus*), and greenside darter (*Etheostoma blenniodes*) are species we had never seen before. Several folks braved the brisk current to bring back a haul of mussels, including Kidneyshell (*Ptychobranhus fasciolaris*), Threeridge (*Amblema*

*plicata*), and Fatmucket (*Lampsilis siliquoidea*), from the rocky section in the middle of the creek.

Evans explained how flat rocks, tree roots, flowing water and shorelines are all microhabitats that support different animals. If the banks are cleared these microhabitats disappear and the diversity of fauna declines. Elkhorn Creek is a wonderful resource in the central Bluegrass and part of the watershed of the Kentucky River. Despite the land use changes along its length including agriculture and land development, it remains one of the healthiest streams in the Bluegrass. 🌿



## MILLIPEDE NEW TO SCIENCE DISCOVERED AT BAD BRANCH STATE NATURE PRESERVE

By Joyce Bender, Nature Preserves and Natural Areas Branch Manager

The first time I saw the dark millipede with the yellow stripes in 1987, I marveled at its size and color. I was new to Kentucky and Pine Mountain and had no idea what kind of critters crawled around in Bad Branch State Nature Preserve. I learned that its bright yellow stripes were a warning to predators that it used toxins as a defense mechanism. In this case, the toxin was cyanide. It has taken a few years to learn more about the millipede, even though the commission encourages research to help us gain knowledge and understanding of the species that live within the preserves.

In 2003 a graduate student contacted the commission asking permission to study the millipedes at Bad Branch, Blanton Forest and Bickford State Nature Preserves. Paul Marek was working on his doctorate and was studying the millipede genus *Brachoria* throughout its range. He has now published his findings ([www.apheloria.org/xfer/Marek\\_ZJLS\\_2010.pdf](http://www.apheloria.org/xfer/Marek_ZJLS_2010.pdf)) and has identified 34 species occurring throughout the southeastern Appalachian Mountains.

Dr. Marek found 10 new species and five of these are within the Cumberland Mountains of Kentucky and Virginia.

Members of this genus look very similar to the untrained eye. Microscopic examination is needed for accurate identification. One of the species that is new to science was found at Bad Branch

and Dr. Marek named this one the Bad Branch mimic millipede or *Brachoria badbranchensis*. Three different color morphs of *B. badbranchensis* have been observed, so you can appreciate the work that went in to sorting out all of the species.



Bad Branch mimic millipede ~ photo by Dr. Paul Marek

eat leaves and rotting logs, helping to break down this coarse debris into finer materials, which is all part of nutrient cycling, an essential role in the forest ecosystem. Keep an eye out when you visit Bad Branch; you just might find the preserve's namesake doing its job along the trail's edge. 🌿





## Quiet Trails SNP Gets A New Trailhead Kiosk!

Byron Brooks, Environmental Tech

Quiet Trails State Nature Preserve in Harrison County was dedicated into the preserve system in 1992. The property has long been used by local Scout troops and school children as a place for outdoor learning. The Scouts built some of the trail features that can still be found there today, though time has taken its toll on a few of them. The original trailhead sign was nearly gone, with only the uprights and a few wooden shingles still hanging on.

Maintenance pool money for preserve infrastructure improvements was secured to replace the old kiosk. During a visit to Quiet Trails to measure and design the new kiosk display panel and determine if the old uprights could be re-used, I met preserve neighbor and volunteer Jim Allen who hikes Quiet Trails regularly and is quite a photographer as well. He offered to lend a hand with the kiosk project.

Materials for construction of the kiosk were purchased and the design got a little fine-tuning. With the availability of a table saw in the KSNPC workshop, major components of the kiosk were efficiently made for preassembly.

With Jim's help, the kiosk was installed on June 23. Displayed on it are a trail map, informative text about the preserve, a 'Venomous Snakes of Kentucky' poster and two of Jim's photos. Lots of thanks to Jim for his hard work, the use of his generator, and for bringing cold soda!

A trip to Quiet Trails SNP makes for a great day hiking in any season - as does a trip to any of the other state nature preserves that are open to the public. With 31 preserves open in 21 counties, there's one nearby. Please check our Web site [naturepreserves.ky.gov](http://naturepreserves.ky.gov) for more information and driving directions to a preserve near you! 📷



'Before' picture of trailhead kiosk. ~ photo by Byron W. Brooks, KSNPC



American snout ~ photo by Jim Allen



'After' picture of trailhead kiosk. Byron W. Brooks (left) Jim Allen (right)





## Spring 2010 Hemlock Woolly Adelgid Treatments

By Kyle Napier, Southeastern Region Preserves Manager

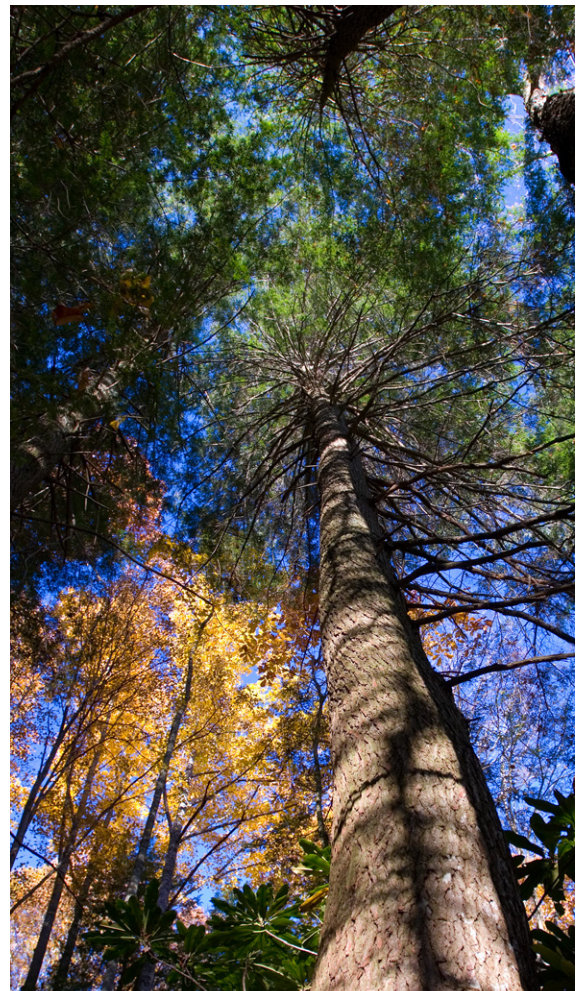
Spring treatments this year started on March 26 and ended on May 20. The conditions were different than the past two years in that we did not have a consistently moist spring, but rather several periods of dry weather interspersed with rain events. During these dry periods we could not treat trees. However, we found several windows of opportunity and took full advantage of the wet conditions that are necessary for effective soil treatments.

On March 26, I was joined by Bryan Dolen and Tristen Curry of the Kentucky Department of Fish and Wildlife Resources (KDFWR) at Stone Mountain State Natural Area. Our goal was to treat a grove of hemlocks that supports a large population of the state endangered Fraser's sedge (*Cymophyllus fraserianus*). We treated a total of 269 hemlocks in the area.

Along with Zach Couch, Jay Bicknell and Adam Jackson of the Kentucky Division of Water (DOW), a total of 724 trees were treated during several outings at Martin's Fork State Natural Area. This was done in an area located along the Martin's Fork Wild River corridor owned by the DOW and managed jointly by the commission and KDFWR.

Clint Lester, of the Kentucky Natural Lands Trust (KNLT), and I also treated a total of 1,315 trees in the Watts Creek drainage at Blanton Forest State Nature Preserve. We exhausted the allotment of pesticide that had been provided to KSNPC by the U.S. Forest Service during our work at Blanton Forest.

As of this spring, a total of 25,308 trees have been treated at Blanton Forest, Bad Branch, Martin's Fork and Stone Mountain. This fall we intend to continue monitoring treated areas in order to detect any reinfestations. We also intend to continue assisting the DOW and KDFWR with treatments at Martin's Fork and Stone Mountain. 🌲



Hemlock-mixed forest, Bad Branch State Nature Preserve  
~ photo by Ellis Lauder milk, KSNPC

## Executive Safety Advisory Committee Safety Award

By Leslie Isaman, Administrative Specialist

KSNPC received the Executive Safety Advisory Committee (ESAC) Safety Award. This award recognizes cabinets, departments or divisions that achieved 12 months of work in the previous year without experiencing any staff time lost due to injury. In 2009, the KSNPC staff worked an estimated 42,900 hours, had only six injury occurrences and no time lost to injury. 🌲



Leslie Isaman, KSNPC (left) and Secretary Nikki Jackson (right)





## LAND PROTECTION Report

By Brent Frazier, Land Protection Specialist


The commission has eight properties in various stages of the acquisition process. The owner of a new tract at Brigadoon State Nature Preserve has signed a land contract for its purchase. This small three-acre tract will be useful to provide protection from encroachment of invasive plants and development.

An appraisal has been ordered for a 132-acre tract at Bouteloua Barrens State Nature Preserve. This parcel would extend the preserve to the Dix River and contains habitat for side-oats grama grass (*Bouteloua curtipendula*), a species of special concern. The tract also contains a large stand of big bluestem (*Andropogon gerardii*) and other native barrens species.

An appraisal has been ordered for a new tract at Terrapin Creek State Nature Preserve. This eight-acre tract is contiguous to the existing preserve and will provide more buffer and stream frontage for the preserve. Terrapin Creek is a highly significant aquatic system that supports an unusual diversity of fishes including several species found nowhere else in Kentucky. Expanding the preserve is a high priority for the commission.

These two projects were approved at the July Heritage Land Conservation Fund (HLCF) meeting.

Two tracts at Crooked Creek Barrens State Nature Preserve in Lewis County are under contract. Survey work is underway on both tracts. This preserve protects five threatened plants. We are also pursuing a possible purchase or a conservation easement on a key tract along the Blood River, in an area we hope to one day dedicate as a state nature preserve. This acquisition would provide protection for the endemic Blood River crayfish (*Orconectes burri*) if we are successful.

The owners of an additional tract at Hi Lewis State Nature Preserve have accepted our offer; however, there are substantial title issues. The owners are helping to overcome these legal difficulties by working with an attorney. Creating a state nature preserve is a bit like working a puzzle. It takes a lot of pieces to put together the amount of habitat needed for the perpetual protection of these special sites. 

## Director's Notes

By Don Dott, Executive Director

Finally, it's here and hopefully on the bookstore shelves when you read this - "*Kentucky's Natural Heritage, An Illustrated Guide to Biodiversity*," edited by Greg Abernathy, Deborah White, Ellis Laudermilk and Marc Evans, it is an essential reference to Kentucky's remarkable natural history emphasizing the importance of conserving the unique biological resources of the Commonwealth. Heavily illustrated with over 250 color maps, photos and charts, it is a cross between a scientific reference and a well illustrated coffee table book. Published by the University Press of Kentucky it will be available for purchase in September. For an advance peek, visit our Web site and follow the link to the book release announcement. We hope to see it widely distributed and used, not only by individuals interested in Kentucky's biological treasures, but also as a resource book for environmental education. "*Kentucky's Natural Heritage*" provides a broad background, including a description of Kentucky's geologic history, which formed the land we live upon, and to which uncounted life forms have adapted. It is a fascinating book, with a compelling foreword by famed author Wendell Berry. "This volume could hardly be more needed, or more welcome to Kentuckians who have at heart the health and the real wealth of their state" he writes, referring to the book's release as "an event of inestimable significance." This is high praise indeed from a bastion of Kentucky's literary community.

The commission's natural heritage staff made several very interesting discoveries this spring and summer. A short list includes only the second known location in Kentucky for a

rare plant, western wallflower, (*Erysimum capitatum*), a bright orange flowering plant in the mustard family. It was found on a limestone bluff along the Cumberland River in the area of Monroe/Cumberland counties. Two species of tiger beetles that appear to be rare in Kentucky have been found. For one it is the only known extant population in Kentucky. The second beetle was found on a small island in the Mississippi River, which also provides critical nesting habitat for the federally endangered interior least tern. Additional survey work is planned to confirm the range of these species in Kentucky. A freshwater snail, the domed ancyliid (*Rhodacme elation*), had not had a confirmed sighting since the mid-1800s. It was located in the upper Green River. These new finds serve as unmistakable reminders that our work is far from finished.

Another reminder is the expectation that two declining species from Kentucky may become federally listed this year - Kentucky gladeless, (*Leavenworthia exigua* var. *laciniata*) and the Cumberland darter (*Etheostoma susanae*). Kentucky gladeless is a diminutive annual that is adapted to the harsh conditions of dolomite glades and is known only from Jefferson and Bullitt counties. It grows and seeds out in the spring before the sun bakes its habitat dry for the summer. It is threatened primarily by the conversion of its habitat to residential and related urban uses. The Cumberland darter is an inhabitant of the upper reaches of Cumberland River tributaries in southeastern Kentucky. It needs excellent water quality, but its streams have largely been degraded by siltation and poor water quality from development activities and resource extraction, primarily





surface coal mining. It is very rare and definitely of conservation concern. It is a federal candidate and will probably make the Endangered Species list.

The commission has had great success in obtaining land purchase funds from the RLA program – Recovery Land Acquisition grants from the U.S. Fish and Wildlife Service. These grants are provided to acquire habitat to protect and recover federally listed species. They are competitive, in that our proposals are ranked and scored against other applications for this funding pool. Thus far we have obtained federal funds in excess of \$780,000 to acquire habitat to protect Brauns' rockcress (*Arabis perstellata*), Short's goldenrod (*Solidago shortii*) and the fanshell (*Cyprogenia stegaria*), a listed freshwater mussel in the Licking River. These efforts have been the result of an effective partnership with the Kentucky Field Office of the U.S. Fish and Wildlife Service and a land trust, the Southern Conservation Corporation, which has undertaken the habitat restoration work at these sites. We are looking to apply again this fall for more RLA grants to help recover federally listed species in Kentucky, while at the same time protecting some high quality natural areas.

Other partners the commission works with are found in Kentucky's land trust community. Land trusts protect areas of nature preserve quality but as private entities their area of interest for protection may also include different kinds of land, often agricultural or of historic value. They provide an alternative to protecting lands that would not qualify or meet the objectives of the commission, but are lands that most often

provide valuable wildlife habitat and green space. The key commonality is that these groups protect *land*. The commission has been active in an informal organization, the Kentucky Land Trust Coalition (KLTC) to help increase the professionalism of existing land trusts and to spur the formation of new ones. Kentucky is far behind most other states in the size of its land trust community. In fact, there is no active state or local land trusts west of I-65 (though I hope someone can prove this statement wrong!). If you have an interest in joining a land trust or even starting a new one we can identify resources available to guide you. One of the best introductory Web sites for a national organization is the Land Trust Alliance, at [www.lta.org](http://www.lta.org).

Finally, you too can be a partner of the Kentucky State Nature Preserves Commission. As an individual (or member of an organization) volunteers are needed to help with stewardship of the preserves. If you have ever visited a preserve and were impressed enough with its natural beauty that you would consider donating a few hours a week or a month to help protect and maintain it, we need your help. Activities can include walking the trails to clear fallen trees, collecting trash, invasive plant removal, restoring or building new trails, and monitoring a plant or animal species population. We lack sufficient staff to maintain the preserves at our high standards and are in great need of reliable, capable individuals or groups who can help protect and maintain these critical natural areas. They are some of the best remaining examples of Kentucky's natural heritage and deserve special care and protection. If this sounds like you, please contact our office. ☞



Short's goldenrod ~ photo by Thomas G. Barnes





# Upcoming *Hikes* and *Events*

Please note that most events require preregistration. View our complete events calendar at <http://naturepreserves.ky.gov/news/>.

Sept. 24. Book Signing at Poor Richard's Books (Frankfort).

Sept. 25. Aromatic Plants of Floracliff (Fayette County).

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Oct. 5. Book Signing at Joseph Beth's (Lexington)

Oct. 9. Exploring Arch Country Guided Hikes at Natural Bridge SPNP (Powell County)

Oct. 10. Exotic Reptiles at Buckley Wildlife Sanctuary & Audubon Center (Franklin County)

Oct. 15-17. Fall Color Weekend at Pine Mountain Settlement School (Bell County)

Oct. 16. Star Gazing at Buckley Wildlife Sanctuary & Audubon Center (Franklin County)

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Nov. 13. Book Signing at Kentucky Book Fair (Frankfort)

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Dec. 4. Book Signing at Carmichael's Bookstore (Louisville)

Dec. 9. Commission Meeting (Frankfort)

More fall events are planned so please check our online calendar for an up-to-date list.



## DON'T FORGET TO DO SOMETHING WILD

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TARA LITTLEFIELD

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### Kentucky State Nature Preserves Commission Quarterly Public Meeting

Dec. 9, 2010

KSNPC Frankfort Office

9 a.m. EDT

Kentucky State Nature Preserves Commission  
801 Schenkel Lane, Frankfort, KY 40601-1403  
502-573-2886

[naturepreserves@ky.gov](mailto:naturepreserves@ky.gov)  
[www.naturepreserves.ky.gov](http://www.naturepreserves.ky.gov)

It is the mission of the Kentucky State Nature Preserves Commission to protect Kentucky's natural heritage by: (1) identifying, acquiring and managing natural areas that represent the best known occurrences of rare native species, natural communities and significant natural features in a statewide nature preserves system; (2) working with others to protect biological diversity; and (3) educating Kentuckians as to the value and purpose of nature preserves and biodiversity.

The Energy and Environment Cabinet does not discriminate on the basis of race, color, national origin, sex, age, religion or disability and provides, upon request, reasonable accommodations including auxiliary aids and services necessary to afford an individual with a disability an equal opportunity to participate in all services, programs and activities. To request materials in an alternative format, contact the Kentucky State Nature Preserves Commission at 801 Schenkel Lane, Frankfort, KY 40601-1403 or call 502-573-2886. Hearing-impaired and speech-impaired persons may contact the agency by using the Kentucky Relay Service, a toll-free telecommunication device for the deaf (TDD). For voice to TDD, call 800-648-6057. For TDD to voice, call 800-648-6065.

