

# Naturally Kentucky

Winter/Spring 2011 Number 65



**KSNPC Latest News:** Terns and tigers are known to roam islands in the Mississippi River. Invertebrate Biologist Ellis Laudermilk ventured out to the islands recently to have a closer look (complete story on Page 2).

☞ The newly formed Friends of Kentucky Nature Preserves has been established to help work for the long-term survival of Kentucky's natural heritage (complete story on Page 10).

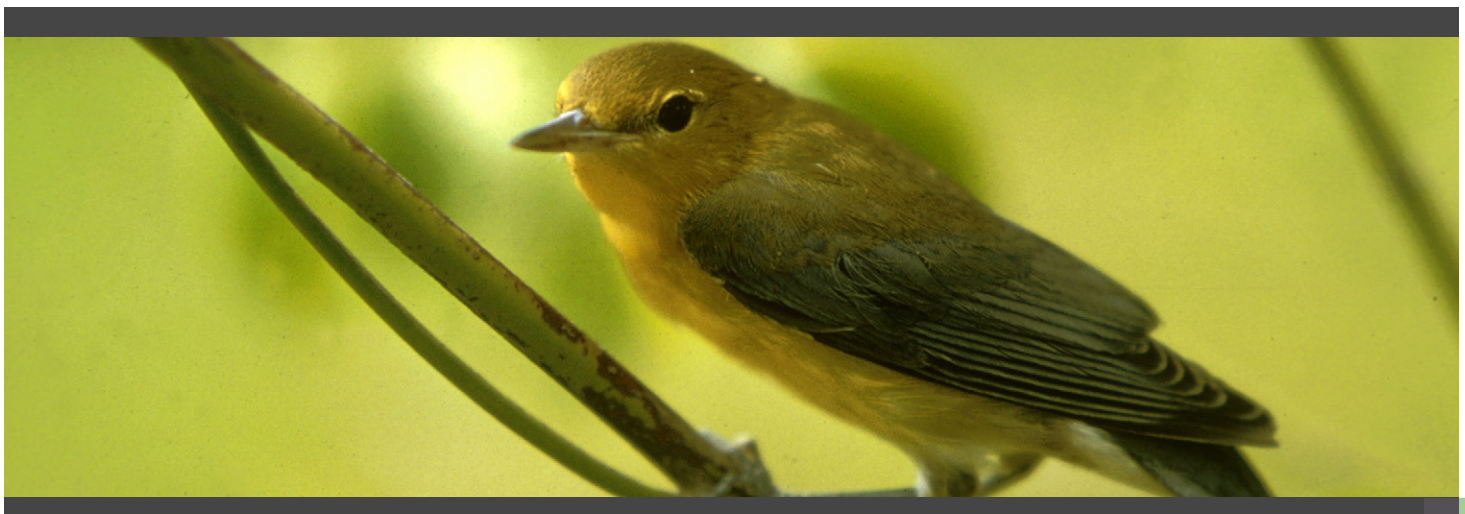
☞ KSNPC will dedicate its 60th preserve during our quarterly meeting on March 24. The 193-acre Blood River State Nature Preserve in Calloway County will protect a rare acid seep community.

☞ KSNPC will be celebrating its 35th anniversary this year. Check our website for special events commemorating our accomplishments to date and the goals we are working toward.

☞ Approximately 1,200 copies of KSNPC's latest publication, "Kentucky's Natural Heritage," have been sold. With over 250 color photos, maps and charts, this lavishly illustrated account of the Commonwealth's biodiversity appeals to a broad population of readers. Be sure to visit your local bookstore and get a copy.

## In This Edition:

Terns and Tigers on the Mississippi	2
Sweet-fern - A Rare Kentucky Shrub	4
The Commission Remembers Quiet Trails Benefactor Bill Wiglesworth	5
In the Spotlight: Cumberland Highlands Forest & Black Mountain	6
Invasive Species Highlight: Lesser Celandine	8
Ryan Evans Leaves the Commission	9
Join the Friends of Kentucky Nature Preserves today!	10
Land Protection Report	10
Director's Notes	11
Upcoming Hikes and Events	12





Interior least tern ~ © John Brunjes

# Terns and Tigers on the Mississippi

By Ellis Laudermilk, Invertebrate Biologist

It was near the end of a hot, muggy summer night as I drove up to the lodge at Ballard Wildlife Management Area (BWMA) in Ballard County at the pre-dawn hour of 4:45 a.m. on July 27, 2010. BWMA is managed by the Kentucky Department of Fish and Wildlife Resources (KDFWR), primarily for waterfowl, but the mission of the day was two-fold. Kerri Dikun and Seth Brown with KDFWR were leaving at 5 a.m., heading for a sand island in the Mississippi River in Fulton County near the Tennessee state line. The island is sometimes divided into two islands because of high river levels. They were going to count the nests, eggs, and chicks of the interior least tern (*Sternula antillarum athalassos*), a federally endangered species. Kerri has dubbed this island's nesting colony the "Kentucky Bend" population. Their effort is part of an annual monitoring program the KDFWR implemented to determine the nesting success of the interior least tern, and I was lucky to join them for the day.

During the tern nesting season, which typically runs from June through August, islands in the Mississippi River that are used for nesting are closed to human activity. Closing the islands helps ensure the protection of tern nests, eggs, and chicks, all of which are extremely vulnerable to crushing by human feet. The terns use the islands because they are protected from many of the predators that could easily access shoreline nests

on the mainland, but the islands are also vulnerable to rising water levels that can inundate and destroy the nests, eggs, and young. If the water levels get too low the islands may become connected to the shoreline, which allows predators to gain access and wreak havoc on the nests and chicks. A delicate balance is required to ensure nest success.

*The Mississippi River will always have its own way; no engineering skill can persuade it to do otherwise...*

— Mark Twain, *Eruption*

A few weeks earlier I had spoken to Dr. John Brunjes, a migratory bird biologist who supervises the tern monitoring program for KDFWR, about tagging along with the crew to look for tiger beetles on the islands. John graciously agreed

to allow my tiger beetle surveys to be the second part of our mission that day. After an orientation by Kerri, I followed her around until we saw the first nests and chicks so I could recognize and avoid them during my tiger beetle searches. The chicks leave the nests relatively soon after they hatch and promptly lie down wherever they choose, well camouflaged against the sand. Each step must be taken only after the sand ahead has been thoroughly scanned for the presence of tern eggs or chicks, and tiger beetles, of course.

The adult terns weren't exactly welcoming hosts to put the matter mildly. They screamed at us and swooped in to defend their nests and young. So, how does a tiny 1.5 ounce bird with a wingspan of 20 inches defend their progeny



Interior least tern ~ photo by Ellis Laudermilk, KSNPC



against a human? With feces, of course. Yes, the adults would fly by dropping their excrement in the direction of the biologists, sometimes with pinpoint accuracy. Before Kerri finished my orientation, Seth yelled across the sandbar that he had been “nailed” five times already. I wasn’t looking forward to this part of the adventure, but miraculously, I could find no evidence at the end of our trip that they had succeeded in their bombing efforts against me. Chalk it up to beginner’s luck, I guess. Kerri and Seth weren’t quite as lucky.

Based on KDFWR’s surveys during the 2010 nesting season, Kerri estimated that 300 to 400 pairs of interior least terns were using the island at Kentucky Bend. The average number of eggs per clutch was 2.34. They tracked the success of 306 marked nests and found that 25 percent produced at least one chick, 60 percent produced no chicks, and 14 percent had an unknown fate (could not determine what happened to the missing eggs). The highest daily count of young occurred on July 30, 2010, when the crew counted 121 baby terns. Fluctuations in the river are common during the nesting season, and nest washouts due to rising water levels accounted for 50 percent of nest failures.

I have one major thing in common with tiger beetles. We both agree the early morning hours are for sleeping, and after a couple of hours searching for beetles while admiring tern chicks, I had seen no tiger beetles. Suddenly, at about 9:30 a.m. the sun broke through the overcast morning and I caught my first glimpse of a tiger beetle that had apparently awakened and ventured out for a stroll on the sandy beach. While I had never seen my main species of interest, the hairy-necked tiger beetle (*Cicindela hirticollis hirticollis*) in the field, I had carefully studied its diagnostic characters. Using my trusty pair of close-focusing binoculars, I confirmed the beetle was indeed a

hairy-necked. The only specimen of the hairy-necked tiger beetle that had been collected in Kentucky to my knowledge was a single specimen collected by Charles Wright in Fulton County on a sandbar along the Mississippi River.

Beetles on islands apparently are not used to seeing mammals of any kind, so when I tried to approach the beetle for a photograph, it ran like somebody had set the sand on fire. Clearly, this was going to be a challenge. I had to pursue an extremely wary tiger beetle while

composition and distribution in Kentucky, and to determine which species may be in need of conservation. A few weeks prior to this Mississippi River trip, Charles, Loran and I were joined by Bill Black and Gerald Burnett in an effort to find the ant-like tiger beetle (*Cylindera cursitans*). This tiger beetle had been reported in the literature as from “KY” but no extant populations were known in the state. With input from tiger beetle enthusiasts in Missouri and after an intense search by the five of us, we were able to locate a population of this approximately one-



Hairy-necked tiger beetle ~ photo by Ellis Lauder milk, KSNPC

watching for tern nests and chicks at the same time. Fortunately, I was approaching a part of the sandbar that had a higher elevation than the rest of the island, and some small vegetation was growing on the higher ground. Tern nests were not present on the higher ground, but more hairy-necked tiger beetles were. I never could get close enough to an individual beetle to get a decent photograph, but I did find one “preoccupied pair” that allowed a few quick photos (see photo). In all, I saw three tiger beetle species that day. The other two, the big sand tiger beetle (*Cicindela formosa generosa*) and the coppery tiger beetle (*Ellipsoptera cuprascens*), are more common in Kentucky.

This tiger beetle survey is part of an ongoing effort by Charles Wright, Loran Gibson and me to document tiger beetle

forth inch beetle on the floodplain of the Mississippi River in Carlisle County. One additional species, the common claybank tiger beetle (*Cicindela limbalis*), has also been reported from “KY” but no other data are available. If it does occur in Kentucky, it has managed to elude us so far. We will continue our search for this species and other possible additions to Kentucky’s tiger beetle fauna.

Habitat in and along the Mississippi River provides a home to several species found nowhere else in Kentucky. The importance of conserving sandbars, islands, wetlands, bottomland hardwood forests, etc., along this mighty river cannot be overstated. Surveying these habitats often yields interesting and rare species, even if one has to endure the “bombing efforts” of the interior least tern. 🐦



# Sweet-fern - A RARE KENTUCKY SHRUB

By Tara Littlefield, Botanist

The wax myrtle or bayberry family (Myricaceae) is known for its odor. These plants have resinous dots on their leaves, making their leaves aromatic. Plants in this family have a wide distribution, including Africa, Asia, Europe, North America and South America, missing only from Australasia. Myricaceae members are mostly shrubs to small trees and often grow in xeric or swampy acidic soils. More familiar members of the wax myrtle family include many in the Genus *Myrica* (sweet gale, wax myrtle), some of which are used as ornamentals and are economically important. In addition, the wax coating on the fruit of several species of *Myrica*, has been used traditionally to make candles.

So what does this interesting family have in common with Kentucky's flora? We are lucky to have just one species in the wax myrtle family, Sweet fern (*Comptonia peregrina*). In addition, it is also a monotypic genus restricted to eastern North America. This means that the genus *Comptonia* has only one species (*C. peregrina*) worldwide, and just happens to be found here in Kentucky! Of course the common name sweet fern is misleading. This woody shrub is certainly not a fern. However, the leaves have a similar shape to pinnules of a fern frond (leaf). But having sweet in the common name is no mistake. If you crush the leaves throughout the growing season, a lovely smell is emitted as the essential oils volatilize into the air.



Sweet-fern ~ photo by Richard Cassell

Sweet fern is a clonal shrub that grows up to one meter high and spreads through rhizomes. The leaves are alternate and simple, linear and coarsely irregularly toothed, dark green above and a bit paler below. It is monoecious (meaning male and female flowers on different plants). The female flowers are not showy—short rounded catkins [dense cluster of apetalous flowers, usually associated with oaks, birches and willows] with reddish bracts. The male flowers are elongated yellow-green catkins clustered at the branch tips, the pollen being adapted to wind dispersal. The fruit is

a round, bur-like cluster of ovoid nutlets that turn brown when mature in late summer. The bark is reddish and highly lenticled (small corky pores or narrow lines on the bark that allow for gas exchange).

While very common in the northern part of its range (northeastern United States and Canada), sweet fern is state listed endangered in Kentucky, along with being state listed as rare in Ohio, Tennessee, South Carolina, West

Virginia, Georgia, and North Carolina. The populations of sweet fern in the southern part of its range are isolated and disjunct from the common habitats up north. There seems to be a close association of these remnant populations with the Appalachian Mountains, which suggests that the populations in the southern ranges remained in protected "refugia" during periods of great plant migrations, such as during glaciations.

Sweet fern is typically found in openings in coniferous forests with well drained dry,

acidic sandy or gravelly soils with periodic disturbances. In the north, it can be found in pine-oak barrens or jack pine and spruce forests that are maintained by fire, creating openings and decreasing competition. It has also been noted to colonize road banks and even highly disturbed soils such as mined areas. Contrary to these open coniferous habitats with periodic fire, the remnant populations of sweet fern in Kentucky and Tennessee are found on sandstone cobble bars, which are maintained by annual floods. Despite being found on habitats that are maintained by different disturbance regimes, these two communities share a few things in common—they are both dry, acidic, sandy and nutrient poor. Disturbances are a natural occurring impact in these communities that removes shrubs and saplings, thus decreasing competition so that sweet fern can thrive.

Sweet fern has adapted to these specialized habitats. It is a fire adapted species; it will resprout after a fire and increase its clonal sprouts through underground rhizomes. It is also a xerophyte, a plant adapted to dry conditions. And since it is adapted to living in nutrient poor, acidic soils, it has evolved with the bacteria *Frankia* that fixes nitrogen, somewhat like the more famous nitrogen fixing legumes that partnered with the bacteria *Rhizobium*. Did you know that there are over 160 species of nonleguminous plants that fix nitrogen? It is also the host of the sweet fern blister rust (*Cronartium comptoniae*) which reduces the growth of pines, particularly Jack pine. What interesting relationships this shrub has with bacteria and fungi! In addition, sweet fern is the food plant to larvae of many species of Lepidoptera (moths and butterflies). These include the Io moth (*Automeris io*), and several *Coleophora* case-bearers (some of which are found exclusively on sweet fern).

But perhaps the most fascinating facts about the rare shrub sweet fern is what it can tell us about the evolution of plants, the history of the earth, and the paleovegetational past of



Kentucky. Geologically speaking, sweet fern is an old plant. In Kentucky, it was most likely more common some 20,000 years ago during the last glaciation, as Kentucky used to look like Canada. Analysis of pollen in sediment cores taken from natural ponds in Kentucky confirms this, spruce and jack pine was common in the uplands in the bluegrass. Sometimes it is difficult to think of plants migrating north and south in order to adapt to a changing climate. But what is even more mind blowing is that

the genus *Comptonia* is perhaps millions of years old. Numerous fossils of dozens of extinct species of *Comptonia* have been found all across the Northern hemisphere, and the earliest of the fossils have been dated back to the Cretaceous period (the age of the Dinosaurs) over 65 million years ago. The first flowering plants (angiosperms) evolved only 135 million years ago, so *Comptonia* is one of the oldest living plants in the world—a true living fossil!

So when April comes around, and all of the spring wildflowers are emerging, think of sweet fern tucked deep into the gorges of Big South Fork and Rockcastle, its catkins releasing pollen in the wind, using the nitrogen fixed from its bacterial friends, withstanding the massive floods of two of Kentucky's last wild rivers. And if you use your imagination, you may be able to see dinosaurs and tree ferns in the distance. ☼

## THE COMMISSION REMEMBERS QUIET TRAILS BENEFACTOR *Bill Wiglesworth*

By Joyce Bender, Nature Preserves and Natural Areas Branch Manager

There aren't too many people in the world who will buy a piece of property, nurture it for many years, get it looking better than it did when they started and then donate it to a state agency. The Kentucky State Nature Preserves Commission has been fortunate to have that happen not once, but twice. The folks who decided to do this weren't world famous philanthropists and they didn't have endless fortunes. They were certainly in a better position than most Kentuckians to be so generous, and their reasons were just as altruistic. They cared about their land and they thought about the welfare of future generations. They wanted to provide a way to educate people about the environment and looked at their land as a means to that end. They also hoped their gifts would inspire others. Macauley and Emilie Smith made their contribution in 1979, and set the Kentucky State Nature Preserves Commission on its path by providing 170-acres, known as Blackacre as the very first nature preserve in the state system.

William G. Wiglesworth Jr. and his wife Martha donated their 110-acre Quiet Trails Retreat to the commission in 1992. I got to know Bill and

Martha as we worked on the land transfer. I had the pleasure of hiking the paths of Quiet Trails with Bill on many occasions. He shared his love of the land and his hope for the property's future as we hiked. He had a keen eye and pointed out little wonders as we walked along. I can still hear his soft chuckle as he delighted in finding a wildflower or hearing a warbler's song. Prior to donating the property, Bill led many school, church and scout groups on hikes. "I want others to have the opportunity to enjoy nature. If people would learn to love and enjoy nature, this earth would be a better place to live." Bill's words still resonate in my ears.

We lost Bill on Nov. 27, 2010; and Martha joined him on Dec. 22. I attended Bill's memorial service and listened to his children talk about his life and his love of nature. His generosity of spirit shines through the succeeding generations. The commission offers our sympathies to the families of these two generous people and promises to continue to care for their treasured legacy at Quiet Trails State Nature Preserve. ☼



Bill and Martha Wiglesworth ~ photo by Joyce Bender, KSNPC



## In the Spotlight: *Cumberland Highlands Forest & Black Mountain*

In Kentucky, the Cumberland highlands forest is the state's most unique high-elevation natural community (KSNPC-listed as state endangered), with examples of this type only found above 3,400 feet on Black Mountain but also occurs in small, isolated patches along peaks within the Cumberland Mountains. Outside of Kentucky, this community is similar to the northern hardwood forests that are common in colder climates of the northeastern United States and Canada. The high-elevation climates of the southern Appalachian Mountains provide a corridor for northern hardwood forests to reach further south into Kentucky, Virginia, Tennessee, North Carolina and Georgia.

Kentucky's Black Mountain is somewhat of an outlier of this southern Appalachian system, lying predominately west of the Blue Ridge Mountains. Sitting high, isolated and limited in range (e.g. upper peaks are like islands), the Cumberland highlands forest has specific elevation, geology and as a result, vegetation. Due to this, NatureServe (the national authority on the status of rare species and natural communities) lists this community as globally imperiled (=G2G3Q) and restricts its occurrence only to Black Mountain in Kentucky. How this community relates to similar northern hardwood forests in the southern Appalachians is still to be determined.

The Cumberland highlands forest has deep, rich soils with characteristic beds of lush herbaceous plants and a canopy of hardwood trees more adapted to colder climates. The development of this mesic forest occurs on the ridge and upper, (steep) north to east-facing slopes of Black Mountain, mostly above 3,500 feet elevation. The southern and western slopes of the upper elevations of Black Mountain grade into drier communities (less rich) with more oak. The lower slopes (typically <3,500 feet) grade into mixed mesophytic forests. The Cumberland highlands forest supports a closed canopy which includes trees that prefer cool

temperatures and moist soils like black cherry, sugar maple, yellow birch and yellow buckeye. Other canopy or sub-canopy trees may include basswood, cucumber magnolia, mountain magnolia, mountain maple, red maple, red oak and striped maple. Shrubs can include species like red elderberry and wild hydrangea. The ground layer is distinctive with a unique assemblage of wildflowers and ferns. The rich wildflower diversity includes Appalachian bunchflower, false bugbane, filmy angelica mountain thimbleweed, rosy twisted-stalk, painted trillium, turk's cap lily and big white trillium. Many of these species in the ground layer are rare or infrequent in Kentucky, often restricted to this high-elevation climate.

These cold, moist peaks create environments suitable for unique species found nowhere else in Kentucky. Nearly 40 KSNPC-listed species have been documented on the upper portions of the mountain. Rare species associated with the Cumberland highlands forest on Black Mountain (but not highlighted below or listed above) include the, alderleaved viburnum, big-tooth whitelip (snail), Blackburnian warbler, bluntlobe grapefern, cinereus shrew, dark-eye junco, glassy grapeskin (snail), Kentucky red-backed vole, least flycatcher, southern mountain cranberry and spotted Joe Pye weed. These high-elevation forests are unmatched

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

Most of the mountain is forest-covered, but Black Mountain is far from pristine. Small portions of the summit have been cleared for communications towers, an FAA radar beacon, and an apple orchard, (formerly a ski slope). Upper to lower slopes are interspersed with abandoned deep mine adits, natural gas wells, reclaimed and unreclaimed surface mine benches, and a few active mine benches. Passable and impassable roads also traverse the mountain at scattered points and an abandoned coal tipple is located in one area. With past and current logging and mining activities, most areas have been altered from their natural state, with many of the forests being young and recovering. Fortunately, patches of rare species and highlands communities still occur (this largely due to KSNPC's efforts to establish the top of Black Mountain as a conservation/protection zone). Further protection efforts are needed for the Cumberland highlands forest and its associated species. It is hoped that in the future more areas of Black Mountain will be preserved for upcoming generations.



High-elevation forests of Black Mountain. ~ KSNPC photo by Marc Evans



## *Canada Warbler* *Wilsonia canadensis*

**KSNPC STATUS:** Special Concern

**USFWS STATUS:** None

**GENERAL DESCRIPTION:** Small insectivorous songbird with slate gray upperparts and mostly yellow underparts. Male birds have a distinctive black “necklace” of streaking across the breast. Blackish crown and cheek contrasts with a yellow line between beak and eye and a bold, whitish eye-ring. Undertail coverts are white. Females are similar to adult males, but face and crown are more olive-gray and necklace is less distinct or lacking.

**HABITAT:** In Kentucky, it occupies moist deciduous forests with a fairly well-developed understory, primarily above 3,800 feet on Black Mountain, but also occurs sparingly as low as 3,500 feet on Cumberland Mountain.

**RANGE:** Nests from southeastern Yukon across southern Canada and east to Nova Scotia. In the U.S., nests as far south as the Appalachian Mountains of northern Georgia. Winters in South America.

**REASON FOR PROTECTION STATUS:** Potential nesting habitat is limited in Kentucky to elevations greater than approximately 3,500 feet in Bell, Harlan, and Letcher counties.



Photo by Lana Hays

## *Filmy angelica* *Angelica triquinata*

**KSNPC STATUS:** Endangered

**USFWS STATUS:** None

**GENERAL DESCRIPTION:** Perennial herb, leaves multi-parted (compound), flowers in umbels (see photo) and the seeds are flat.

**HABITAT:** Hardwood forests on mountain summits in forest openings, open rocky slopes, stream margins and meadows.

**FLOWERING PERIOD:** Early August to late September.

**RANGE:** Mountains from Georgia to Pennsylvania.

**REASON FOR PROTECTION STATUS:** High elevation habitat is limited in Kentucky; this plant is found on Black Mountain and a few other sites.



Photo by Eugene Wofford, UT Herbarium

## *Early Hairstreak* *Erora laeta*

**KSNPC STATUS:** Threatened

**USFWS STATUS:** None

**GENERAL DESCRIPTION:** A very distinct hairstreak butterfly with underside of wings pale mint green, red-orange spots on the outer third of the wings, and a red-orange submarginal band on the wings. Female with extensive blue color on upperside of wings, reduced blue color in males. Wingspan less than an inch.

**HABITAT:** Primarily beech forests.

**LARVAL FOODPLANT:** In Kentucky, larvae feed on American beech.

**FLIGHT SEASON:** Two broods in Kentucky. First brood flies from April to early May, and second brood flies in July.

**RANGE:** Primarily northeastern North America and south along the Appalachian Mountains to northern Georgia.

**REASON FOR PROTECTION STATUS:** This species has a very limited range in Kentucky with few known occurrences. Despite numerous searches at known sites, only a few individuals have been observed in the state since the late 1970s.



Photo by John MacGregor



# Invasive Species Highlight: *Lesser Celandine*

## *Lesser celandine*

*Ranunculus ficaria*

**DESCRIPTION:** Lesser celandine is a perennial herbaceous plant in the buttercup family. It is low-growing and has kidney- to heart-shaped dark green, shiny, stalked leaves. Its flowers are borne singly on delicate stalks and have eight glossy, butter-yellow petals. It blooms in early March and April. Pale bulblets (asexual means of reproduction) form in the leaf axils.

**ORIGIN:** A native of Europe, lesser celandine was introduced for use as an ornamental. Colorful varieties of this plant are available commercially in the U.S. All varieties of lesser celandine have the potential to escape cultivation and can readily invade natural areas.

**EXTENT IN KENTUCKY:** Lesser celandine is becoming more common throughout the northern portion of the state, from Jefferson County to Lewis County. It is found in a variety of habitats including floodplains, forested wetlands, moist woodlands, thickets, lawns and gardens.

**IMPACT:** Lesser celandine emerges prior to native species, making it particularly threatening to native spring ephemerals such as bloodroot, wild ginger, spring beauty, cut-leaved toothwort, Dutchman's breeches, harbinger-of-spring, twinleaf, squirrel-corn, trout lily, trilliums, and Virginia bluebells. Lesser celandine spreads mostly by the dispersal of its bulblets and tuberous roots.

**MANAGEMENT:** The best management is to avoid a future problem by not planting this highly invasive species in your landscape. Grubbing the plant out of the ground often only increases it, by allowing its bulblets and root tubers to become established in disturbed soil. Mechanical removal can be an option for a small population, but the soil must be painstakingly searched to ensure the removal of all roots and bulblets. All plant material must be bagged.

Herbicide treatments are the most effective weapon against this species. 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. Applicators should be careful not to treat adjacent native spring wildflower species! For populations occurring along streams, be sure to use herbicide that is labeled for aquatic use.

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



Photo by Joe Boggs

Lesser celandine has the dubious honor of being named Kentucky's Least Wanted Plant of 2011. Each year, an exotic invasive plant is named "Least Wanted" to raise awareness of the threat it poses to native biodiversity. A poster is developed by Bernheim Arboretum and Research Forest and the Kentucky Exotic Pest Plant Council (KY-EPPC) for that year's "winner." The poster also suggests some native alternatives for planting by conscientious gardeners. Lesser celandine so far, has a limited distribution in Kentucky. That makes it a candidate for early detection and rapid response.

Help document the extent of this alien invader in the Commonwealth. If you find it, please add records to the EDDMapS website - [www.eddmaps.org](http://www.eddmaps.org).

Learn about early detection and rapid response for exotic invasive species by visiting [www.eddmaps.org/about/EDRR.html](http://www.eddmaps.org/about/EDRR.html).

The list of Kentucky's Least Wanted Plants (2001-2011) can be viewed by visiting [www.se-eppc.org/ky/leastwant.htm](http://www.se-eppc.org/ky/leastwant.htm).



Photo by Joe Boggs





## Ryan Evans Leaves the Commission

By Deborah White, Lead Botanist

Ryan Evans has left the life aquatic at the commission to work for the Kentucky Division of Water. While he served as aquatic zoologist at the commission for less than five years, he accomplished a lot. He quickly became acquainted with the issues and biological hotspots for mussels and fish, and focused on areas where information would be most needed. Ryan completed, and in some cases published, the results of several studies that document the status and decline of mussels in several stream systems including Kinniconnick Creek (building on the work of Ron Cicerello, retired KSNPC biologist), South Fork of the Kentucky River, Laurel Fork and Mud Creek in Whitley County. Ryan contributed to multi-agency efforts to assess the Cumberland papershell mussel (*Anodontoidea denigratus*), Cumberland arrow darter (*Etheostoma sagitta sagitta*), relict darter (*Etheostoma chienense*) and blackside dace (*Chrosomus cumberlandensis*).

Ryan is particularly interested in aquatic snails and contributed to the state's understanding of this under-surveyed group. His section in the commission's book *Kentucky's Natural Heritage* highlights the uniqueness and importance of these animals.

Despite how demanding the aquatics work was, he took the time to understand and contribute perceptive comments for environmental reviews of proposed development projects through our state clearinghouse system. He was a regular on the commission's prescribed fire crew and he was much appreciated for his willingness to help others accomplish their work. Ryan is a biologist who works for the protection of biodiversity and is highly committed to conservation; it is at least some consolation to know that he will continue to work for the protection of aquatic resources in Kentucky. 📷



Stream ecology fieldtrip with Ryan Evans (R). ~ photo by Martina Hines, KSNPC



## JOIN the Friends of Kentucky Nature Preserves today!

By Martina Hines, Heritage Data Specialist/Ecologist

Over the past several years, KSNPC has lost much of its funding and as a result, many opportunities to save natural areas and protect rare species are missed. The newly formed non-profit Friends group has been started to bridge the gap and improve the chances for long-term survival of Kentucky's natural heritage.

The Goals of Friends of KNP are:

1. Help with land protection and management for rare species and landscapes in need, but also for the benefit of Kentuckians who need more places to enjoy the outdoors and explore our incredible biodiversity!
2. Support biological surveys because the faster inventories are completed and information made available to land planners, the more likely it is that important natural areas can be protected.
3. Ensure that more people learn about our natural treasures and their contributions to quality of life by working with schools, training volunteers and developing educational materials.

Please consider donating to the Friends of Kentucky Nature Preserves to help us achieve these critical goals. Your gift will help protect rare species and establish and expand nature preserves, trails and wildlife areas where you and others can enjoy nature.

To learn more visit [www.friendsokynaturepreserves.org](http://www.friendsokynaturepreserves.org).



KSNPC Botanist Tara Littlefield leading a wildflower walk.  
~ KSNPC staff photo

## LAND PROTECTION Report

By Brent Frazier, Land Protection Specialist

The commission finished 2010 by closing on several key tracts. A few of these acquisitions were challenging, so finally adding them to our inventory is really rewarding. The first tract will soon become our 60th preserve. It is located in southeast Calloway County and will be dedicated as the Blood River State Nature Preserve during the March commission meeting. This acquisition will provide protection for a rare acid seep community. Two tracts at Crooked Creek State Nature Preserve were also purchased. The projects, which were set in motion in early 2008, contain populations of rare and endangered species in a barrens/glade community and will be dedicated at the March commission meeting. A tract at Brigadoon State Nature Preserve in Barren County and adjacent to Barren River Reservoir was dedicated at the December commission meeting. This three acre tract will provide protection from encroachment of invasives and development. This is a great preserve to visit in April for spring wildflowers.

The commission is working with the Kentucky Natural Lands Trust, Kentucky Department of Forestry, and the Kentucky Department of Fish and Wildlife Resources to obtain a 1,588 acre tract in Whitley County on Pine Mountain. The project and area are known as Laurel Fork. The title work is currently undergoing final review with the project scheduled to close early in 2011. These tracts contain significant natural areas that include federally listed mussels and globally rare species

including the rock harlequin (*Corydalis sempervirens*), Cumberland arrow darter (*Etheostoma sagitta sagitta*), and blunt mountain mint (*Pycnanthemum muticum*). Laurel Fork is also part of one of the largest forest blocks in the state.

A tract at Terrapin Creek State Nature Preserve is in the final stages of acquisition. This eight acre tract is contiguous to the existing preserve and will provide more stream frontage. The preserve protects a highly significant aquatic system that supports an unusual diversity of fishes including several species found nowhere else in Kentucky. Expanding Terrapin Creek State Nature Preserve is a high priority.

Several other land acquisition efforts are underway. Hardin County Fiscal Court has generously agreed to donate some of their wooded acreage to the commission as an addition to Jim Scudder State Nature Preserve. The owners of a tract at Bouteloua Barrens State Nature Preserve in Lincoln County have unfortunately declined three purchase proposals. The owners of a tract at Hi Lewis State Nature Preserve on Pine Mountain have accepted our purchase offer; however, there are substantial title issues. The owners are currently working with an attorney to resolve the title problems, but it is likely to be a slow process. It would seem that land purchases are never quick and easy. ☹️



## Director's Notes

By Don Dott, Executive Director

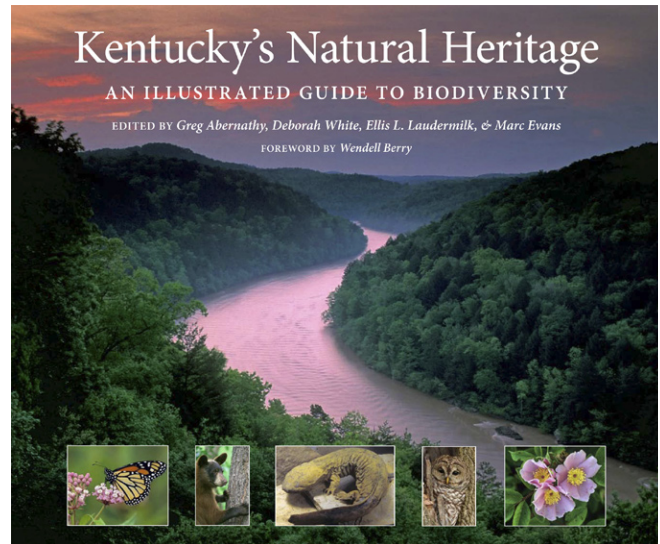
The commission's newest publication, "*Kentucky's Natural Heritage, An Illustrated Guide to Biodiversity*" arrived on bookstore shelves in late September 2010. It has been cheered with rave reviews. The Courier Journal stated "This is simultaneously a scientific and historic work," "beautifully photographed" and "a valuable guide to places where rarities can be viewed." It is a compelling reference to Kentucky's remarkable natural history and emphasizes 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 an attractive coffee table book. If late winter keeps you inside a little longer, take some time to explore this book – it may lead you to discover areas of Kentucky you did not know existed. Are your interests piqued by bayou-like swamps, or crisp mountain air and forested vistas? Are you fascinated by bat caves or simply enjoy canoeing down a lazy stream listening to the quiet dip of a paddle? Get outside and explore an area of the state where you have never been before, you may be surprised at what you find.

But there is a gorilla in the room. "Climate change is real.... [it] is not a distant threat; it is occurring here and now. The unmistakable signs of a rapidly changing climate are everywhere – melting glaciers, heat waves, rising seas, flowers blooming earlier, lakes freezing later, migratory birds delaying their flights south. No geographic region is immune," declares the U.S. Fish and Wildlife Service (USFWS) website, dated Feb. 22, 2011. The USFWS also states that climate change, "Is the single greatest conservation challenge of the 21st century; The service is already witnessing and documenting the effects of climate change on fish and wildlife and their habitats, and accelerated climate change is magnifying impacts on water and land resources, agriculture, and biological diversity." Changes are expected in natural occurrences such as the location and intensity of wildfires; altered rain and snowfall patterns; increases in temperature in many locations; changes in access to water resources; altered hydrology in rivers and wetlands; increased frequency of extreme weather events and other impacts.

"Climate change will amplify existing management challenges involving ....an emphasis on large areas with interconnected and ecologically functional habitats capable of sustaining many species — landscapes — rather than single species or isolated or remnant habitats."

- From: *U.S. Fish and Wildlife Service, Questions & Answers, Climate Change Strategic Plan, September 2010.*

Unquestionably, climate change will be a tremendous challenge to protecting Kentucky's biodiversity. The only uncertainty is how severe it will become. But one thing is clear – we will have to work on a landscape level. This means protecting larger areas and establishing corridors to connect areas of high biodiversity to facilitate the movement of animals and plants as they are thrust into an unprecedented period of rapid change. Endemic and rare



species are likely to be put at even greater risk of extinction. To help increase awareness of this need, recommendations were made to Gov. Steve Beshear and the General Assembly in the commission's 2009-2011 biennial report. Two of those recommendations include:

1. Increase significantly the rate of land conservation in Kentucky. Conservation lands are key to protecting biodiversity and the eco-services provided by natural areas which are necessary to a high quality of life for our citizenry. Land is being developed at a rapid rate and conservation opportunities are being lost, never to be regained in our lifetimes.
2. Develop a climate change action plan. A plan must be developed to prepare for the developing changes in the climate and its impacts on the biota and habitats of Kentucky. Because these changes will affect all of us, the plan must be developed inclusively with the participation of the Kentucky Dept. of Natural Resources, the Kentucky Dept. of Fish and Wildlife Resources, the U.S. Fish and Wildlife Service, The Nature Conservancy, and other resource and conservation agencies and groups. A statewide plan is needed to protect key areas of the landscape and wildlife corridors to interconnect them. A climate action plan could then be used to educate and inform land development agencies to guide better land use decisions to protect conservation lands and eco-system services.

We need a strong constituency to enable us to implement a response to the challenge of climate change that will really be effective. The long cold grip of the 2010/2011 winter will be easing soon, find a good place to get back outdoors and re-energize yourself with nature. Spring is the season of rebirth and new beginnings. Take a forest break, a wildflower walk take a friend and hike a preserve, explore a state park, or a local natural area. And when you come back, use that positive energy to get involved – be it locally, on a state level or even at the national level. Help us keep it green! 🌱



# Upcoming *Hikes* and *Events*

Please note that most events require preregistration. View our complete events calendar at [naturepreserves.ky.gov/news/](http://naturepreserves.ky.gov/news/).

March 24 Commission Meeting (Frankfort)

March 26 Wildflowers of Early Spring at Floracliff SNP (Fayette County)

March 26 Early Spring Wildflowers at Lower Howard's Creek Heritage Park and SNP (Clark County)

March 30 Mid-week Wildflower Hike at Floracliff SNP (Fayette County)

~~~~~  
April 2 Wildflower Hike at Floracliff SNP (Fayette County)

April 9 Bill's Hike at Lower Howard's Creek Heritage Park and SNP (Clark County)

April 9 Native American Uses of Spring Wildflowers with Amy Haynes at Floracliff SNP (Fayette County)

April 9 Adventure Trek to Blanton Forest SNP at Pine Mountain SPNP (Harlan County)

April 13 Forest Stroll at Lower Howard's Creek Heritage Park and SNP (Clark County)

April 15-17 Pine Mountain Wildflower Weekend at the Pine Mountain Settlement School (Harlan County)

April 16 Almost Last Chance Hike at Lower Howard's Creek Heritage Park and SNP (Clark County)

April 23 Last Chance Hike at Lower Howard's Creek Heritage Park and SNP (Clark County)

April 29-May 1 Wildflower Weekend at Natural Bridge SPNP (Powell County)

~~~~~  
May 6-8 Black Mountain Weekend at the Pine Mountain Settlement School (Harlan County)

May 6-7 Herpetology Weekend at Natural Bridge SPNP (Powell County)

May 14 Birding with Hank Yackek at Floracliff SNP (Fayette County)

May 21 Herpetology with Zeb Weese at Floracliff SNP (Fayette County)

May 22 Wildflower Walk at Blackacre SNP (Jefferson County)

May 22 International Day for Biological Diversity (2011 theme is Forest Biodiversity)

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

## KENTUCKY STATE NATURE PRESERVES COMMISSION

### COMMISSIONERS

CARL W. BREEDING, CHAIR

ADRIAN ARNOLD

PETER BROWN

JOHN E. CHISM

SHIRLEY TRUNNELL

### STAFF

DONALD S. DOTT JR.

EXECUTIVE DIRECTOR

GREG ABERNATHY

JOYCE BENDER

BYRON BROOKS

JUDY CUNNINGHAM

SHAUNA DUNHAM

BRENT FRAZIER

MARTINA HINES

SARA HINES

FELISHA HUBBARD

LESLIE ISAMAN

ELLIS LAUDERMILK

LANE LINNENKOHLE

TARA LITTLEFIELD

KYLE NAPIER

ZEB WEESE

DEBORAH WHITE

BRIAN YAHN

An Equal Opportunity Employer



## DON'T FORGET TO DO SOMETHING WILD

ON YOUR STATE INCOME TAX RETURN AND USE THE CHECKOFF BOX TO DONATE TO THE NATURE AND WILDLIFE FUND!

### Kentucky State Nature Preserves Commission Quarterly Public Meeting

March 24, 2011

KSNPC Frankfort Office

10 a.m. EST

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

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

