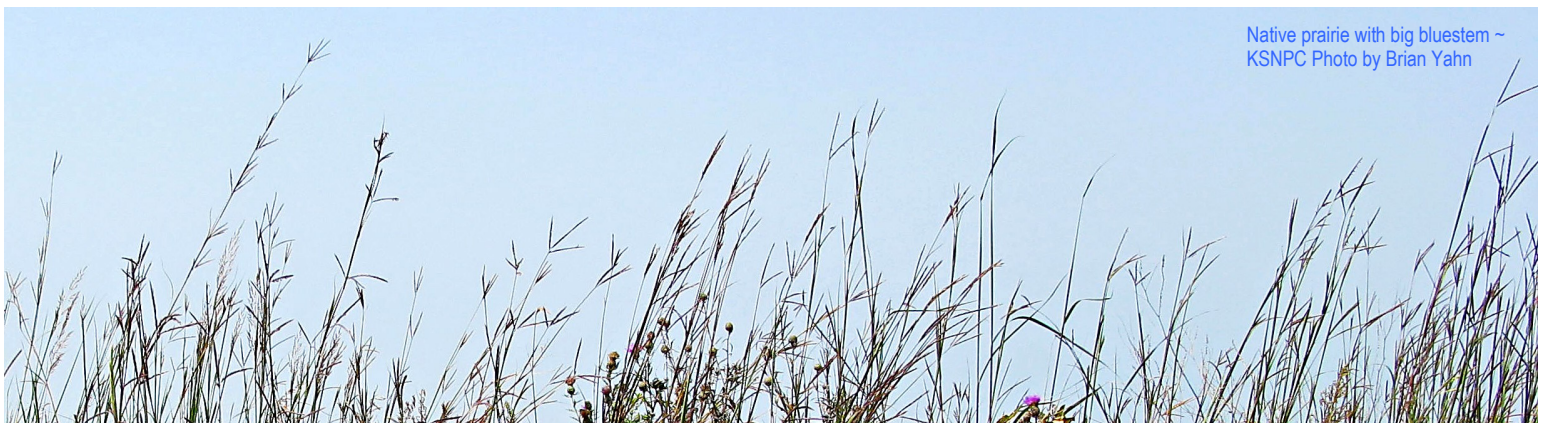


KSNPC's Latest News Items:

- ◆ Time is running out to participate in the commission's second annual photography contest! The contest is open until November 1, 2015. Simply take a photo at a Kentucky state nature preserve and upload it to our Flickr page at <https://www.flickr.com/groups/ksnpc>. There are five contest categories: Plants, Animals, Insects, Landscapes, and People/Miscellaneous. The overall winner will receive a copy of *Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity* and recognition in KSNPC's newsletter and Facebook page.
- ◆ More than a dozen Kentucky State Parks are working on projects to help monarch butterflies by preserving habitat and planting milkweed plants, a staple food source. Five state parks are certified monarch "waystations" through Monarch Watch, a group working to protect the butterflies. Ten other parks are either in the process of becoming certified or have planted milkweed plants. The park system began working on the monarch project in 2013 with the Garden Club of Kentucky.
- ◆ Kentucky's highest peak, Black Mountain in Harlan County, is known for its unique collection of species found nowhere else in the state. However, in 2008 Mr. Charles Wright of Frankfort discovered a weevil species recently identified as *Asperosoma echinatum* on Black Mountain that turned out to be the first U.S. record! This species was previously known only from Manitoba and Ontario, and was believed to be endemic to Canada (see photo in the Director's Notes on page 12).
- ◆ In 2016 the commission will celebrate its 40th anniversary as an agency! We hope to collaborate with our conservation partners throughout the year to mark this very special occasion and continue our mission to educate Kentuckians about the importance of preserving our rich, natural heritage.

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Native prairie with big bluestem ~
KSNPC Photo by Brian Yahn



Kentucky's Threatened and Endangered Fishes —The Duskytail Darter—

By Michael A. Floyd, PhD
Kentucky Ecological Services Field Office
United States Fish and Wildlife Service



Photo courtesy Dr. Matt Thomas, KDFWR

In the third of six articles on Kentucky's federally listed fishes, I present the duskytail darter (*Etheostoma percnurum*), a small member of the perch family (Percidae) that is known from four, widely separated populations in Kentucky, Tennessee and Virginia. Within Kentucky, the duskytail darter is restricted to the Big South Fork Cumberland River (Big South Fork) in McCreary County. The species was federally listed as endangered in December 1993, shortly before it was formally described as a new species.

In 2008, scientists determined that the duskytail darter was actually a species complex comprised of four separate species: the marbled darter, *E. marmoripinnum* (Tennessee); the Citico darter, *E. sitikuense* (Tennessee); the tuxedo darter, *E. lemniscatum* (Big South Fork, Kentucky and Tennessee) and the duskytail darter (Tennessee and Virginia). The U.S. Fish and Wildlife Service (USFWS) supports this new classification, but has yet to prepare and publish a listing document that recognizes the three new species. Consequently, the four species continue to be treated as the duskytail darter (*E. percnurum*) under the Endangered Species Act.

Common Name	Species	Listing Date
Blackside dace	<i>Chrosomus cumberlandensis</i>	1987
Relict darter	<i>Etheostoma chienense</i>	1994
Duskytail darter	<i>Etheostoma percnurum</i>	1993
Cumberland darter	<i>Etheostoma susanae</i>	2011
Palezone shiner	<i>Notropis albizonatus</i>	1993
Pallid sturgeon	<i>Scaphirhynchus albus</i>	1990

The duskytail darter reaches a maximum length of about 2.5 inches. Outside of the breeding season, males and females are difficult to distinguish, and the body coloration is somewhat dull, with a gray head, white belly and faint vertical bars or stripes on the body. During the breeding season, the males are quite distinctive, with dark swollen heads, darkened vertical bars and brilliant gold, fleshy knobs on the tips of the dorsal fin.

Spawning occurs from April to early June, during which time the male chooses and cleans a spawning site under a rock. The female lays one cluster of 23-300 eggs, attaching them to the flattened underside of the nest rock. The male cleans and protects the cluster until hatching. Duskytail darters can live up to three years.



Within Kentucky and adjacent portions of Tennessee, the duskytail (or tuxedo) darter occupies an approximate 14 mile reach of the Big South Fork. Within this reach, the species tends to occupy pools or slow-flowing glides (areas just upstream of a riffle) and runs (area just downstream of a riffle) with low silt and an abundance of cobble or boulder substrates. The species may also inhabit the slower, flowing edges of shallow pools. Young duskytail darters prey on small aquatic invertebrates and crustaceans, while older individuals feed on larger prey items, such as mayflies, caddisflies, midges and sometimes fish eggs.

Within the Big South Fork, the species continues to be threatened by water pollution and siltation associated with surface coal mining, oil and gas exploration, toxic chemical spills, improper pesticide use and land development. The species is also threatened due to its limited range and small population size, making it vulnerable to stochastic events, such as chemical spills and droughts, which could lead to extirpations in portions of the watershed.



In early 2014, the duskytail darter made national news when its unexpected presence within the headwaters of Lake Cumberland caused a stir within the tourism community. Since 2006, the water level of Lake Cumberland had been reduced and maintained at low elevations by the U.S. Army Corps of Engineers (Corps) to allow for repairs to Wolf Creek Dam. The lower water levels created by the draw-down led to the re-establishment of riffle and pool habitats within portions of the Big South Fork that were typically inundated by the lake. These conditions allowed biologists with the Corps and Tennessee Valley Authority to conduct surveys in late 2013, resulting in the discovery of duskytail darters at multiple sites. The Corps had previously announced its intention to raise lake levels in the spring of 2014 (in time for the summer boating season), so the unexpected discovery of the darter in the headwaters of Lake Cumberland was perceived as something that could delay the return of Lake Cumberland to normal levels. The Corps and USFWS worked cooperatively in early 2014 to develop a plan that would allow for Lake Cumberland's water level to be raised, while minimizing impacts to the darter. The plan included sediment-reducing measures within the Big South Fork, annual surveys and monitoring, captive propagation and genetics research.



In the Spotlight: Bottomland Hardwood Forest

By Brian Yahn, Vegetation Ecologist



KSNPC Staff photo

Bottomland hardwood forest is a type of moist to wet, deciduous forest of level floodplains. Today they occur as fragmented, small remnants across Kentucky's landscape. Prior to Euro-American settlement, this community was well developed and wide-spread with these forests following the corridors of large and moderate-size streams throughout Kentucky. Oaks, gums, hickories, sycamore, cottonwood and ash reached towering heights and attained massive sizes in these alluvial bottoms. The rivers of central to western Kentucky, with wide floodplains and slow-moving meandering streams, supported the greatest development. Characteristic rivers like the Mississippi, Ohio, Green, Cumberland, Barren, Pond, Rough, Salt, Tennessee, Tradewater and Clarks (and their immediate tributaries) supported large, interconnected expanses.

Outside of Kentucky, bottomland forests of similar composition extend across the Ohio and upper to mid-Mississippi River valleys. Kentucky's communities share the greatest similarities with the states that border the Commonwealth. For instance, Southeastern states, in particular those south and west of Tennessee, support bottomlands with southern oaks and magnolias and southern pines that do not occur in Kentucky. In general, bottomland forests throughout the Midwest, Northeast and Southeast have a good range of variability, divided into many types; some are globally rare while others are more common. The types of forests occurring in Kentucky are not currently considered globally rare (**apparently secure (=G4)** or **secure (=G5)**, according to NatureServe, the national authority on the status of rare species and natural communities.

Since Euro-American settlement, human activities such as logging and conversion to agriculture and pasture, have destroyed most bottomland forests. Attempts by humans to channelize and drain moderate to large streams (and their tributaries) have also reduced this community's "footprint" on the landscape. Invasive non-native and weedy native plants and animals have altered the condition of most remaining lowland woods. Only a few bottomland remnants are uncut (old growth). Forest quality and degradation are concerns in the second-growth quality remnants. With the many drastic changes in the natural landscape, Kentucky's bottomland hardwood forest communities are now rare, and KSNPC-listed as **state special concern (=S3)**. Less than 40 high-quality occurrences are documented in the KSNPC Heritage database, with only a quarter of these larger than 150 acres. Just a few sites have both large size and retain good quality (500 + acres with mature, representative trees and healthy understories) (2015).

A description of the natural condition of this community is based on the remaining examples in Kentucky. Although these sites are considered high-quality they are still affected by past and current disturbances and landscape changes. Soils are wet (hydic) to mesic (moist) and frequently flood with the duration occasionally prolonged. The best examples are dominated by a mix of tall, sizable wet-tolerant hardwoods. The variety of oak trees prevalent at each site varies, but bur oak, cherrybark, overcup, pin, swamp chestnut and swamp white oak are the most characteristic. Other important hardwoods include: American elm, eastern cottonwood, Kentucky coffeetree, green ash, shellbark hickory, sugarberry, sweetgum and sycamore. The vegetation strata below the canopy are also developed, including understory trees, shrubs, woody vines, grasses, sedges and forbs. Healthy populations of conservative native species (sensitive to heavy soil disturbances) are scattered throughout. Spicebush and pawpaw are often common shrubs, with swamp privet more commonly seen along the Ohio and Mississippi River bottoms. Woody vines are also a regular component including common greenbrier, trumpet creeper and poison ivy. Many native sedges, grasses and forbs/wildflowers are associated, with varying species dominance.



Expanse of lowland forest in Ballard County, showing Bottomland hardwood forests in the foreground and surrounding Fish Lake. ~ KSNPC Staff photo



At least eight KSNPC-listed plants have been documented on, or in close association with bottomland hardwood forests (KSNPC 2015). These rare species (not highlighted below or listed above) include; blue scorpion-weed, Carolina silverbell, Eastern mock bishop's-weed, rose turtlehead, supple-jack, water hickory and zigzag iris (KSNPC 2015). Many animal species including amphibians, birds, invertebrates (insects and crayfish), mammals and reptiles rely on bottomland hardwood forests for survival. A more specific list of unique, rare or characteristic animals associated with this community has not been compiled.

Since the time of Euro-American settlement, bottomland forests have been disappearing from Kentucky at an alarming rate. Logging, clearing for agriculture and pasture, draining and channelization, unnatural flooding, trampling/grazing, construction of ponds and reservoirs, development of roads and buildings, suppression of fire, erosion and siltation, continue to degrade and often eradicate our remaining bottomland forests. Better understanding and protection are needed to keep these lowland forests healthy and on the landscape. For more information on these communities in Kentucky contact commission ecologists Brian Yahn brian.yahn@ky.gov or Martina Hines martina.hines@ky.gov.



Bottomland hardwood forest along Rocky Creek, Muhlenberg County. Small-spice false nettle and smartweeds dominate in the herb layer.
~ KSNPC Photo by Brian Yahn

References:

- [KSNPC] Kentucky State Nature Preserves Commission. 2009. Natural communities of Kentucky. Working draft. Frankfort, KY.
[KSNPC] Kentucky State Nature Preserves Commission. 2015. Kentucky Natural Heritage Database. Kentucky State Nature Preserves Commission, Frankfort, KY.
NatureServe. 2014. NatureServe Explorer Worldwide Web data base. <http://www.natureserve.org/explorer>. Accessed in August 2015.
Nelson, P. W. 2005. The terrestrial natural communities of Missouri. Missouri Natural Areas Committee, Jefferson City, MO.



Species associated with Bottomland Hardwood Forest:

Blue Jasmine Leather-flower *Clematis crispa*

KSNPC Status: Threatened

USFWS Status: None

General Description: Blue jasmine leather flower is a vine with pinnate leaves. This rare vine has flowers that are lavender-blue and bell shaped with curly edges. It blooms from May to late August.

Habitat: Floodplain and alluvial forests, swamps and sloughs

Range: Native to the southeastern United States, grows as far north as Illinois

<http://eppeapp.ky.gov/nprareplants/Details.aspx>

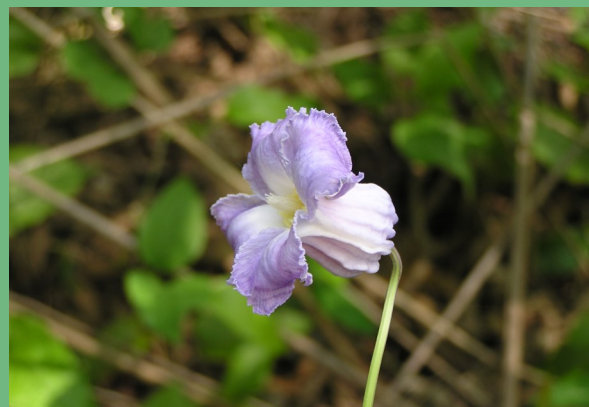


Photo courtesy Robert Dunlap

Ant-like Tiger Beetle *Cylindera cursitans*

KSNPC Status: Watch list

USFWS Status: None

General Description: Kentucky's smallest tiger beetle, this species resembles an ant in both appearance and behavior. Adults are approximately one-third of an inch long. Upperside mottled brown with metallic green indentations and light-colored dots and short lines. Wing cover margins have a thin complete, or sometimes interrupted, whitish band. Underside is coppery metallic green.

Habitat: In Kentucky, this species seems to prefer partially shaded, sandy substrates with sparse vegetation in bottomland forests along rivers, especially the Mississippi.

Range: Occurs locally from the Ohio River and lower Mississippi river basins west and north to the upper Missouri River basin.

Flight Season: Adults are active primarily during June and July.



KSNPC Photo by Ellis Laudermilk

Cajun Dwarf Crayfish *Cambarellus shufeldtii*

KSNPC Status: Special concern

USFWS Status: None

Range: Native to the Gulf Coastal Plain Region of the U.S. It occurs in four counties in western Kentucky along the lower Ohio River and Mississippi River floodplains.

Habitat: This lowland species inhabits floodplain ditches, ponds, sloughs, and swamps and is often associated with dense aquatic vegetation over soft mud.

General Description: The Cajun Dwarf Crayfish is one of Kentucky's smallest crayfishes, with individuals rarely exceeding 28 mm in total length. Overall, the coloration of the claws and body is variable and ranges from rust red to light brown to gray. In addition, two longitudinal brown or black stripes over the carapace and abdomen are present, but occasionally individuals will have two rows of brown or black spots fused into uninterrupted bands instead. Lastly, the tail fan will have two blue stripes.

Reasons: The Cajun Dwarf Crayfish has a limited range within Kentucky and its bottomland habitats are frequently altered through channelization and draining.



Photo courtesy Dr. Guenter Schuster



Kentucky's Invasive Plants

By Shaun Ziegler, Eastern Regional Preserves Manager

Sweet autumn clematis (*Clematis terniflora*), also known or sold as: sweet autumn virginsbower, autumn clematis, autumn virginsbower, leatherleaf clematis, yam-leaved clematis, *Clematis maximowicziana*, *Clematis dioscoreifolia* and *Clematis paniculata*.



Sweet autumn clematis ~ KSNPC Photo by Shaun Ziegler

Sweet autumn clematis is in the buttercup or crowfoot family (Ranunculaceae). It is a woody, climbing, ornamental vine whose leaves can persist through mild winters in Kentucky, making it a semi-evergreen plant. This plant has opposite leaf arrangement and compound leaves that have three to five elliptic to cordate (heart-shaped) leathery leaflets. The leaflets are two to four inches long and the leaflet margins are usually entire, or smooth-edged, contrasting with the native *Clematis virginiana* which are usually toothed on the margin. Another distinguishing factor of this plant compared to the native *Clematis virginiana* is that the native is monoecious meaning that individual flowers are unisexual, but both flower sexes are found on a single plant. Flowers on the invasive clematis are perfect flowers and contain both male and female structures on each individual flower. The flowers are showy and fragrant, have four white petals, are about one inch in diameter and bloom from August through October. These flowers grow on terminal clusters that are dense and can cover the foliage. Seeds are also showy with long, feathery, silver gray hairs in thin heads almost resembling a dandelion arrangement. The vine can grow upwards of 30 feet tall supported by other plants or spread as a ground cover with stem diameters up to four inches. Twigs are wiry, starting green and turning to brown over time. The bark is initially smooth and light brown maturing to have long splits and strips that look to shed.

Habitat: Sweet autumn clematis was brought from Asia and has been cultivated in the United States since the latter half of the 19th century as an ornamental plant. It was chosen for fragrant, showy, fall blooming as a ground cover and privacy screen. This plant can grow in full sun to partial shade and is found throughout urban, suburban, and rural yards and green spaces, old homesteads, woodland edges, riparian or creek borders and fencerows.

Distribution: Sweet autumn clematis is currently found throughout Kentucky. In the United States this plant is found from the Canadian border down to the Gulf coast and from the Eastern seaboard to the beginnings of the Great Plains.

Threat: Sweet autumn clematis is currently listed as a severe threat in Kentucky as it spreads easily into native plant communities. This plant grows vigorously and produces an abundance of seeds that readily germinate and continue the spread season after season if left unchecked. The continued advance into native communities where it grows over and chokes out most native species, including trees, makes this species a real and present concern.

Control: Plants can be hand cut or mowed, but must be dug up to have complete removal. All plant material should be bagged and removed from the growth site. Excellent results can be accomplished by cutting the stem close to ground level and applying a 25 percent triclopyr amine solution or 25 percent glyphosate solution (Roundup) to the cut stump. Foliar spraying with a two to three percent triclopyr amine (Garlon 3A) solution or basal-bark application with a 15 percent Triclopyr ester (Garlon 4 oil) solution is effective in controlling the plant. A three percent glyphosate solution as a foliar spray can provide some control, but is usually only effective as a temporary control.



Sweet autumn clematis sprawling on vegetation ~ KSNPC Photo by Shaun Ziegler



Cranks Creek/Stone Mountain Educational Trail Open House

By Kyle Napier, Southeastern Regional Preserves Manager

For the last two years, the Kentucky State Nature Preserves Commission (KSNPC) along with the Kentucky Department of Fish and Wildlife Resources (KDFWR) has worked with Rosspoint Elementary School to develop the Cranks Creek/Stone Mountain educational trail and outdoor classroom facilities. Located in Harlan County, the state natural area and wildlife management area have both benefited from site improvements, courtesy of a Recreation Trails Grant and matching funds from KSNPC and KDFWR.

During the spring of 2014, Rosspoint staff members Terri Kelly, Hobie Boggs and Bryan Howard made it possible for the entire seventh-grade class to visit the site for a field day. The day long outing included several presenters. Zach Couch from the Division of Water demonstrated how to sample for water quality for macro invertebrates. Stacy White from the Bell County Extension Office brought many native mammal pelts and presented information to the students about each species. Derrick Lindsay from KDFWR explained to the students about black bears in Kentucky. The outing was topped off when faculty and students were lead on a nature hike on the newly created trail. The students really enjoyed the field day and it was agreed that this event should continue.

On April 8, 2015, KSNPC and KDFWR worked with the same staff members from Rosspoint to conduct an open house, which allowed the eighth grade students to present information about the local wildlife and forest types within the Stone Mountain area. The students worked in groups to put together eight very good presentations and it was apparent they had spent extensive time preparing for the event. An additional talk concerning raptors was conducted by licensed rehabilitator Mitch Whitaker of the Letcher County Extension Office. The students had an up-close experience with a red-tailed hawk, a great horned owl and an eastern screech owl. They were completely amazed by these magnificent birds as well as Mitch's wonderful demonstration. The event was a great educational success and Rosspoint Elementary School faculty decided they would like to make these field trips an annual event.



Student's Presentation Board, 2015



Rosspoint Elementary Student with Great Horned Owl, 2015



KSNPC's Key Role in the Recovery of the White-Haired Goldenrod

By Tara Littlefield, Botanist



Photo courtesy Dr. Tom Barnes

Over the past 25 years, former KSNPC botanists Deborah White and Nick Drozda, along with current botanist Tara Littlefield, have hiked the Red River Gorge. They trudged through near impenetrable rhododendron thickets and seemingly impassable cliff lines, to find new populations and monitor existing populations of the rare and endemic white-haired goldenrod (*Solidago albopilosa*). This plant was listed as federally threatened under the U.S. Endangered Species Act in 1988, primarily because of its highly restricted range and the damage being caused to the plant from recreational activities. It is mainly found within the Daniel Boone National Forest (DBNF) in the Red River Gorge Geological Area. The species grows in loose, sandy soil of sandstone rock houses, ledges and cliff faces.

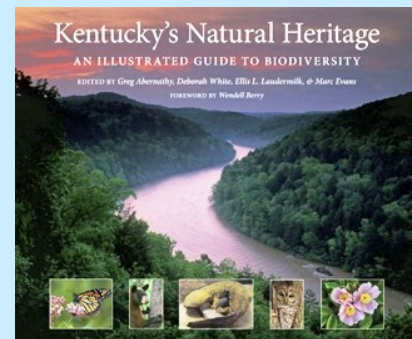
Working with DBNF staff along with the U.S. Fish and Wildlife Service (USFWS), KSNPC botanists defined the range of the rare goldenrod, which is known from a 44 square mile area in the Red River Gorge Geological Area. Since the White-haired Goldenrod Recovery Plan was published by USFWS in 1993, the number of individual rock houses with white-haired goldenrod was increased from 90 to 141, particularly due to surveys conducted by KSNPC. Assessments of recreational impacts by the commission, along with DBNF staff resulted in the fencing of numerous populations. The meticulous counting of plants over the years led to the realization that many of the populations were stable and that the goals of the recovery plan were met. Because of

this important work, KSNPC and their former and current botanists were recognized by USFWS in the recovery of white-haired goldenrod. White-haired goldenrod was delisted by the USFWS in September 2015.

Kentucky's Natural Heritage Art Display at Central Bank

By Leslie Isaman, Administrative Specialist III

Thanks to the fertile imaginations of invertebrate zoologist, Ellis Laudermilk and former staff members Deborah White and Greg Abernathy, KSNPC commissioned the creation of a very unique art display consisting of 21 aluminum "panels" featuring images of Kentucky's native plants, animals and natural communities. The results of this process are vivid color representations, which lend a three dimensional "feel" to their subjects. During the month of July, this distinctive collection was exhibited in the John G. Irvin Gallery at the main branch of Central Bank in downtown Lexington. A wine and cheese reception was provided by Central Bank on July 10th to open the show.



The premise for the metal art display was the book, "*Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity*". Produced by the commission in collaboration with the University Press of Kentucky, the coffee table quality book details the rich and unique biodiversity within the Commonwealth. With over 250 photographs, several of which were featured in the Irvin Gallery exhibit, the book contains informative tables, figures and narratives, which bring to life the plants, animals and natural areas of our state. Because of its wide appeal and extensive educational content, it is now being used as a science text book in middle and high schools and distributed to college and university libraries.



One of the 21 aluminum "panels" featured in the biodiversity display is this Eastern Pondhawk Dragonfly, photographed by KSNPC Invertebrate Zoologist, Ellis Laudermilk

Donald S. Dott, Jr., Director of the Kentucky State Nature Preserves Commission had this to say, "The Central Bank gallery was a great opportunity to display these beautiful images. It is especially fitting to be in a Lexington venue, home of the University of Kentucky, where the late Dr. Thomas G. Barnes taught. An artist with a camera, Barnes donated innumerable photographs to the commission to aid its work in educating Kentuckians of the need to protect our biodiversity. We dedicated this showing to Tom in gratitude for the many ephemeral images of nature he preserved with a lens, for Kentuckians and nature lovers everywhere to enjoy," said Dott.

Please contact the commission if you have an exhibit space and would like to showcase these art pieces. The commission's book, "*Kentucky's Natural Heritage: An Illustrated Guide to Biodiversity*," can be purchased through the University Press of Kentucky, Amazon.com or the commission at <http://naturepreserves.ky.gov>.



Kentucky Barrens Tour with Fire Historian Stephen J. Pyne

By Joyce Bender,
Nature Preserves and Natural Areas Branch Manager

Kentucky's snowy and then rainy spring, coupled with not enough staff to field a burn crew had me down in the dumps. But, one bright spot was spending April 13th and 14th touring some of my favorite fire-maintained preserves with Arizona State University professor and fire historian, Dr. Stephen J. Pyne. He accepted an invitation I made in 2014, after I learned that he had not spent any time in Kentucky looking at fire's role in our oak barrens communities. We were accompanied by Lizzie Wright, a new hire with the Oak Woodlands and Forests Fire Consortium. Her enthusiasm for new places and inquisitive nature ensured that the tour would be a thorough one.

Pyne's experiences working as a firefighter on the North Rim of the Grand Canyon right out of high school and into his early thirties, gave him fire as a topic that has engaged him ever since. Pyne has covered the globe in the many books he has written about fire, its role, impacts, management, mismanagement and the politics; in essence, the story of fire on landscapes across the United States, Europe, Australia and Africa. His interests aren't just about fire, he has explored the explorers too. Antarctica and the travels of the Voyager space craft have also been the subjects of his studies. I was honored to show this fire scholar part of my life's work – using prescribed fire to manage preserves that my staff and I have been caring for since 1987.

We started our tour at Jim Scudder State Nature Preserve (SNP) in Hardin County. Early spring on the glades is not as colorful as summer, but we enjoyed the magenta petals of prairie phlox and the mustard yellow blooms of hoary puccoon. I described the limestone slope glade and discussed its response to the fires we have conducted there over the years. We next visited Eastview Barrens SNP, also in Hardin County. We have spent many years applying fire to this preserve, with good results. Unfortunately, due to budget and staff cuts, we have not burned a sizable tract there since 2011, and it shows. While it pained me to look, Pyne appreciated seeing the results of what happens when fire is abruptly removed from a system that thrives with it.

We spent the next day west of Bowling Green, visiting Raymond Athey Barrens, Flat Rock Glade and Logan County Glade SNP's. We have conducted prescribed burns at Raymond Athey Barrens since 1992. The results there are very gratifying – the barrens community of post and black jack oaks is healthy without a crowded red cedar mid-story shading all of the sun-loving prairie plants. We have even recovered a population of the state endangered prairie gentian there. Walking the open limestone exposures at Flat Rock Glade always helps visitors understand the effect that dry, sunbaked rock has on limiting the spread of plant life. It is one of the preserves that (so far) has held up without our use of fire as a management tool. Visiting the limestone slope glades on the edge of Russellville gave me a chance to explain that even thin, dry soils cannot indefinitely hold back the steady push of cedars and redbuds. Open glades that have been without regular management since 2010 are closing in. This is limiting the survival of the shade-intolerant glade species, including several rare plants such as Carolina larkspur and Eggleston's violet. Years of hard work are being erased while our budget stagnates.



Dr. Pyne is writing a suite of books focused on our country's fire regions. His tour of Kentucky barrens will be included in one book that incorporates his thoughts on oak woodlands as well as several other fire regions. His working title is "*Middle Ground: A fire history of the oak-woodlands.*" Pyne's time in Kentucky made a good impression and he understands what we are up against. Commenting on our preserves' small sizes, he noted that they are far from trivial. He said, "They are the sites where the fire ecology of the oak woodlands today is being discovered, where appropriate fire practices are being devised and applied, where fire-catalyzed patches are being renewed, if not restored." He said these small patches "...can punch above their weight class because they have value as symbols, as final sanctuaries, as rallying points for spreading good fire and as fulcrums to leverage neighboring lands."

After 29 years, my history at the commission seems mostly written now. I look back on the work my staff and I did to return fire as a healing touch to ailing landscapes. When the smoke cleared and the ash blew away, we saw the glimmers of recovery, the "way it should be", at least for a little while.

To learn more about Steve Pyne and his work, please go to <http://www.stephenpyne.com/>



Joyce Bender with Dr. Stephen Pyne
Eastview Barrens State Nature Preserve, Hardin County.
Photo courtesy Lizzie Wright

Natural Area Registry Spotlight

We shine the spotlight on the Tucker Creek Registered Natural Area.

Tucker Creek, located in Franklin County, contains approximately 30 acres of regenerating calcareous mesic forest and woodland, known for its spectacular spring wildflower display and rare plant occurrences. It contains the western most population of the federally endangered plant Braun's rockcress (*Boechea perstellata*) to be found in Kentucky. This rare mustard is found only in middle Tennessee and north central Kentucky. Tucker Creek also contains a small population of the state endangered yellow gentian (*Gentiana flavida*).



The natural area registry is a voluntary, non-regulatory program designed to provide recognition for sound stewardship of special areas and to increase awareness of the ecological significance of a landowner's property. To be eligible for registration, a property must contain habitat for plants or animals that are rare or declining in Kentucky or that contain an outstanding example of a Kentucky ecological community, such as an old growth forest, wetland, glade or prairie.

Yellow gentian (*Gentiana flavida*). Photo courtesy Dr. Tom Barnes



The Director's Notes

By Don Dott, Executive Director

Sunrise over Pine Mountain
~ KSNPC staff photo

The commission is gratified to learn that the first printing of, “*Kentucky’s Natural Heritage, an Illustrated Guide to Biodiversity*” is selling out. Fortunately, a second printing will place the book in every middle, high school, college and university library in the Commonwealth. The 250-page book provided inspiration for the Institute for Healthy Air, Water and Soil, and the reprint was funded by generosity of the Owsley Brown II Family Foundation. The Institute is a non-profit organization headquartered in Louisville, dedicated to improving human health by addressing environmental determinants.

The reprinting achieves one of the original goals of the commission - for the biodiversity book to be utilized as a teaching resource, as well as being read by anyone interested in the great Kentucky outdoors. The reprinted edition is available to the public through retail outlets.

With school underway, the commission has partnered with Kentucky Educational Television (KET) and the University Press of Kentucky to develop online resources for grades four through 12. These interactive sessions are based on images and information from the book and can be found at: <http://www.pbslearningmedia.org/collection/kentuckys-natural-heritage-an-interactive-guide-to-biodiversity/>.

The digital collection will also include video segments from “*Kentucky Life*”, KET’s popular weekly magazine program. The collection is available at PBS LearningMedia, a free online educational service offered online through KET’s EncycloMedia at: <http://ket.pbslearningmedia.org/resource/kybio/kybio/>.

Staff change - I am saddened to report the departure of Shauna Dunham from the commission. Shauna is one of those rare, quiet workhorses, who knows GIS and computers from the ground up. She was key in helping to manage the natural heritage data, using and analyzing it and presenting it in ways to help decision makers understand impacts on our state’s biodiversity. She could also cure almost any computer problem we threw at her. We are sad to say goodbye, yet we are glad she still resides in the same building, working for the Division of Information Services. Just a muffled scream for help away! Best wishes Shauna with your new position.

Welcome Shaun Ziegler - If you are a regular reader you know the commission struggles with loss of stewardship staff due to repeated budget cuts, with only two members to manage and oversee 63 state nature preserves and over 27,000 acres. We are very excited to welcome the addition of Shaun Ziegler to the stewardship branch. Shaun will be stationed in Frankfort, centrally located to all the preserves. The only area he won’t be responsible for is the southeastern region, where Kyle Napier has been our long time and steadfast regional preserve manager. Joyce Bender, who has been single-handedly overseeing and managing the rest of Kentucky’s state nature preserves, is thrilled to have Shaun join her stewardship branch. The commission will still be short staffed, but it’s a much needed step forward.

Volunteer opportunities with the commission - If you feel an urge to help care for one of your state nature preserves, please contact the commission about volunteer opportunities. It’s a great way to get outdoors on some of Kentucky’s best natural lands and gain satisfaction from helping out at the same time. If you like computers and are detail oriented, our data manager, Sara Hines can use a hand with a variety of projects utilizing natural heritage data. Whether serving as a preserve monitor, helping repair a hiking trail, assisting with invasive plant control or entering heritage data, volunteers are essential partners in obtaining the commission’s goals.

Helping pollinators - In 2014, the White House directed the Environmental Protection Agency (EPA) to work with states to develop Managed Pollinator Protection Plans to reduce pesticide risks to bees and other managed pollinators. The project to develop a Kentucky Managed Pollinator Plan is being led by the Kentucky Department of Agriculture and State Apiarist, Tammy Horn. The commission is participating in developing the plan as part of our expanded focus to discover, document and protect Kentucky’s native bees and pollinators. Public meetings will be held to better inform the plan, likely this winter/spring. For more information, check the website of the State Apiarist at <http://www.kyagr.com/statevet/honeybees.html>.

From the front cover - In 2008 Mr. Charles Wright of Frankfort discovered a weevil species recently identified as *Aspersoma echinatum* on Black Mountain that turned out to be the first U.S. record! This species was previously known only from Manitoba and Ontario, and was believed to be endemic to Canada.



Photo courtesy of Robert Anderson



HURRY! KSNPC's 2015 photo contest ENDS November 1st!

**More events are planned so please check our [online calendar](#) for an up-to-date list.

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



Join the Friends of Kentucky Nature Preserves Today!

friendsofkynaturepreserves.org

KENTUCKY STATE NATURE PRESERVES COMMISSION

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Tara Littlefield - Botanist

Kyle Napier - Southeastern Preserves Manager

Brian Yahn - Vegetation Ecologist

Shaun Ziegler - Eastern Preserves Manager

Please remember to recycle.



DON'T FORGET TO DO SOMETHING WILD ON YOUR STATE INCOME TAX RETURN — USE THE CHECKOFF BOX TO DONATE TO THE NATURE AND WILDLIFE FUND!

Kentucky State Nature Preserves Commission Quarterly Public Meeting

**Dec. 10, 2015, 10:00 a.m.
KSNPC Office, 801 Teton Trail**

Frankfort, KY

**Kentucky State Nature Preserves Commission
801 Teton Trail, Frankfort, KY 40601-1403
502-573-2886**

**naturepreserves@ky.gov
<http://naturepreserves.ky.gov>**

Check us out on Facebook: www.facebook.com/ksnpc

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 preserve 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.

