Naturally Kentucky

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KSNPC Latest News:

The Commission contributed to this year's Kentucky State Fair Education Exhibition which focused on the biodiversity of Kentucky. The exhibit was titled "The Mosaic of Life" and was focused on teaching the half-million-plus visitors to the fair what biodiversity is and why it is so important. (complete story on page 2)

The Kentucky Landowner Incentive Program provides funding and assistance to landowners in Laurel County in an effort to protect populations of the endangered white fringeless orchid. (complete story on page 4)

KSNPC renames the main trail at Pilot Knob SNP to honor Oscar Geralds. (Complete story on page 5)

The second annual Short's Goldenrod Festival was held in September. The festival is a chance to celebrate the successful restoration efforts for one of Kentucky's rarest plants, Short's goldenrod (*Solidago shortii*). (Complete story on page 8)

The Landowner Incentive Program has had a change of biologists. Heather Housman has resigned (complete story page 9), and is replaced by Andrew Berry in an interim position. Additionally, the Commission welcomes two new interim Nature Preserve Management Workers. Thomas Kring and Matt Ware are assisting in the management of the preserves across the state.

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The Cumberland Plateau (Southeastern Kentucky) ~ Marc Evans, KNSNPC

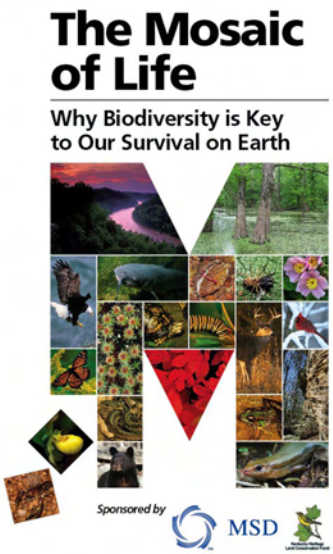
Biodiversity Project Reaches Over 500,000 Kentuckians, Launches New Educational Resources

By Stephanie Darst, Exhibition Curator, *The Mosaic of Life*

The hooks: stunning photographs of landscapes and species (some familiar, some surprising), fascinating facts about the Commonwealth's natural heritage, a wide variety of fun and engaging programs, all intended to capture the attention of half-million-plus Kentucky State Fair visitors.

The goal: teach those visitors the basics of biodiversity and demonstrate its importance.

The Mosaic of Life project was launched in the largest venue in the state as the theme of the 2007 Kentucky State Fair Educational Exhibition. The 20,000-square-foot exhibition was funded by the Kentucky State Fair Board, the Metropolitan Sewer District (MSD), and the Kentucky Heritage Land Conservation Fund.



The exhibit's more than 100 graphic panels introduced visitors to Kentucky's rich species, landscape, and ecosystem biodiversity. "Mosaics" of captioned photos provided an overview of forest, stream, wetland, grassland, and cave habitats, including key threats to biodiversity and actions that citizens can take to protect biodiversity in these ecosystems.

Biodiversity: The variety of life forms - including bacteria, algae, fungi, plants, and animals - and the various natural connections (interactions, processes, and cycles) that link these diverse life forms into populations, communities, ecosystems, and biomes.

Additional photos were featured in rotating slide shows scattered throughout the exhibition, including *Weird Plants of Kentucky* by the Kentucky State Nature Preserves Commission (KSNPC) and *Kentucky's Most Amazing Insects* by the University of Kentucky's Department of Entomology. IronStrike Productions created a five-minute film about Kentucky's biodiversity, adding another media dimension to the visitor experience.

A giant floor map of Kentucky's natural regions, surrounded by a border of 150 landscape and species photos, was at the center of the photo mosaics. Measuring 16-feet-by-33-feet, the colorful floor graphic allowed visitors to explore the state's regions and protected lands by walking across the map. An educator was on duty to interpret the content and lead students in geography-based map games.

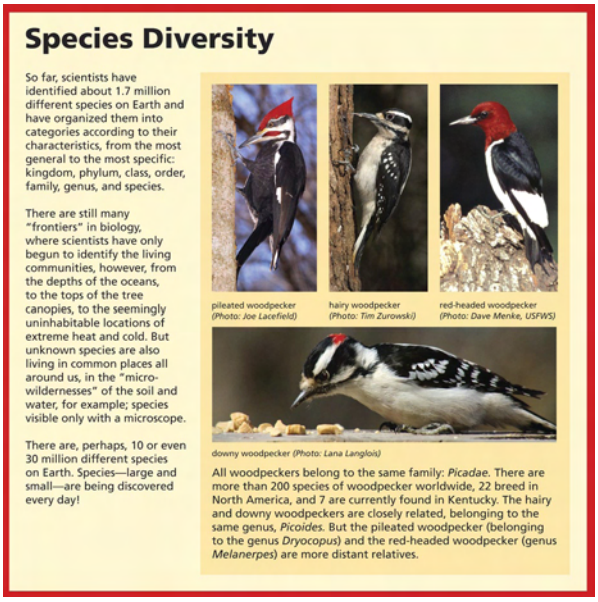
Lending a global perspective were thirty-six graphic panels exploring a few of Africa's biodiversity hotspots, representing rainforest, wetland, savanna, and desert habitats. The African photo mosaics fulfilled the State Fair's ongoing think-global-act-local initiative, Project Global, launched in 2005.

The Mosaic of Life Exhibit ~ Stephanie Darst
Note: Exhibit logo and graphic design work by Steve Sebree, Moonlight Graphic Works

The Mosaic of Life exhibition was much more than a two-dimensional visual experience, however. A variety of native plants grew along a fifty-foot stream, demonstrating the importance of riparian and forest habitats to biodiversity. Title sponsor MSD constructed a rain garden to show homeowners a strategy for protecting stream biodiversity, while at the same time establishing a backyard wildlife habitat. Two of the most popular elements were mini-habitats created in large aquariums. One was a stream current tank, inhabited by fish, crayfish, frogs, and snakes from Floyd's Fork in Jefferson County; the other was a soil ecosystem teeming with beetles, earthworms, fungi, and other organisms of healthy soil.

Visitors could even explore the "unseen" world of the mini soil and aquatic ecosystems in daily projection microscope programs led by the Jefferson County Soil & Water Conservation District. Other programs presented in the exhibition's Biodiversity Lab included a KSNPC presentation on Kentucky's endangered species, a hands-on encounter with reptiles and amphibians, and a biodiversity quiz show to challenge students. Of the 589,364 visitors to the State Fair August 16-26, nearly 13,000 of them were students on pre-planned field trips.

Visitors to the 2007 Kentucky State Fair were not the only beneficiaries of *The Mosaic of Life*, however. Many of the project resources have been made available on a new web site, www.kybiodiversity.org, created by project partner Jefferson County Public Schools. The web site features printable graphics from the exhibition, the introductory film on biodiversity, several slide shows, and links to many web sites. More than twenty new lesson plans for all grade levels have been published as well, including many student activities for exploring biodiversity outdoors.



The Mosaic of Life was a tremendous collaborative effort of educators, conservationists, biologists, photographers, and many other Kentuckians who understand the vital role of education in protecting biodiversity. As Senegalese ecologist Baba Dioum so eloquently stated: *"In the end we will conserve only what we love; we will love only what we understand; and we will understand only what we have been taught."*

Weird Plants

KSNPC developed a demonstration for the state fair on unusual plant adaptations exhibited in the Kentucky flora. Here are just a few examples:

Hairy Plants?
The long hair on hairy hawkweed (*Hieracium longipilum*) covers it from stem to leaves. Why? So grazing animals will avoid it rather than munch on the plant – otherwise they'll get a mouthful of hair.

Tumbleweeds in Kentucky?
When we think of tumbleweeds we think of cowboys of the West. But similar to tumbleweeds, wild indigo (*Baptisia sp.*)breaks away at the base of the plant and rolls around in the breeze. The plants do this to distribute their seed.

Exploding Plants!
Wild geranium (*Geranium maculatum)* and jewelweed (*Impatiens capensis*) have fruit that have explosive seed capsules. This way their seed is spread farther away. This is advantageous because they can expand their population farther.

Jewelweed ~ Thomas G. Barnes

KSNPC Landowner Incentive Program Works to Protect Rare Orchid

By Andrew Berry, Landowner Incentive Program Biologist

The white fringeless orchid (*Platanthera integrilabia*) is a state endangered plant and a candidate for federal protection. This species inhabits seeps, swamps, and floodplains in a four-county region of southeastern Kentucky. The orchid's existence in Kentucky is at risk due to the loss or alteration of its habitat. It is particularly sensitive to changes in hydrology that may result from disturbances caused by livestock, logging, and road building.

KSNPC regularly monitors populations of this species to check for any detrimental effects that may have occurred subsequent to the last observation. On recent visits to sites in Laurel County, it was found that two populations growing in seeps were in danger of extirpation. We discovered that cattle had been using these seeps for water and shade during the hot, dry months that Kentucky has experienced this summer. As a result, portions of these seeps had been degraded and were no longer considered to be optimal habitat for the orchids.

Working through the Landowner Incentive Program (LIP), KSNPC and Kentucky Department of Fish and Wildlife Resources approached the landowners adjacent to these two populations to develop partnerships that will improve and protect the orchid habitat. Fencing provided to the landowners at no cost through the LIP program will ensure that cattle will no longer be able to access these seeps. As these seeps are allowed to recover, we hope that our efforts of monitoring and protecting the white fringeless orchid will enable these plants to persist for many generations to come.

White fringeless orchid ~ Tara Littlefield, KSNPC

LIP has been instrumental in bridging the gap between private landowners and state agencies. The partnerships formed by this project are an example of how we can address threats to rare plants, animals, and habitats on private lands. With roughly 93% of Kentucky's land in private ownership, cooperation between private landowners and state agencies is imperative for the conservation of Kentucky's biodiversity.

White Fringeless Orchid Seep (Laurel County)
~ Tara Littlefield, KSNPC

Pilot Knob's Main Trail Renamed to Honor Oscar Geralds

By Joyce Bender, Branch Manager for Nature Preserves and Natural Areas

On October 7, over 60 friends and family members gathered at the trail head of Pilot Knob State Nature Preserve to surprise Oscar Geralds with a trail dedication ceremony. Oscar had no idea as he ambled up the path to the trailhead, ostensibly to show the preserve to two friends, that he would be attending an event to rename the trail in his honor. To say Oscar was surprised is an understatement. Many were moved to tears as Ray Barry, chair of the Cumberland Chapter of the Sierra Club, and Joyce Bender, Nature Preserves Branch Manager, praised Oscar's many contributions to protecting Kentucky's environment. The Bluegrass Group of the Cumberland Chapter of the Sierra Club had approached the Commission in March with a request to help honor Oscar's lifetime of work for Kentucky's environment. At the time, members were concerned about some health problems Oscar, 77, had experienced and realized they wanted to acknowledge his efforts so he would truly know how much he meant to the club and to Kentucky.

Oscar Geralds, Jr. (in hat) views the sign for the trail named in his honor ~ Panaena Bina

The connections Oscar has with Pilot Knob and the Commission, as well as his decades-long dedication to protecting our wonderful Earth, made the club's request one which we could easily appreciate. Rare is the occasion to name a trail after a person still living, which demonstrated all the more our admiration for Oscar. When we re-routed the main trail up Pilot Knob several years ago, Oscar was there helping clear out the tangles of cat briars. Even more significant is his work with several other passionate believers to save the nearby Red River Gorge from being flooded behind a dam in the early 1960's. Oscar also served as a KSNPC commissioner from 1983 to 1985.

Sierra Club member Dave Cooper summed things up well when he invited everyone to attend the dedication: "Oscar has been a steady and guiding presence for the Club's members and has donated thousands of hours as an attorney, as well as office space, equipment and money to help the Club. He is a Sierra Club Life Member and has served as Chapter Chair and in many other offices. We want to honor Oscar's lifetime of work for Kentucky's environment and his achievements, and so we have worked with our friends at the Kentucky State Nature Preserves Commission to rename the trail to beautiful Pilot Knob in Powell County 'The Oscar Geralds Trail'."

Despite the near-record 92 degree temperatures in October, everyone enjoyed their hike to the top of the knob. Those who worked their way up with Oscar's group were regaled with stories that he and Carroll and Doris Tichenor shared about their strategies to save the Red River Gorge, including inviting Supreme Court Justice William O. Douglas for a hike in the Gorge. Dinner at Natural Bridge State Resort Park lodge followed the hike and everyone was treated to more entertaining stories of Oscar's years with the Sierra Club. Please come out and hike the newly named trail and reflect on the efforts of one very dedicated person who has helped to sustain Kentucky's natural heritage. Maybe you will be inspired to follow the trail that Oscar has blazed for all of us.

View from Pilot Knob SNP ~ Joyce Bender, KNSPC

In the Spotlight: Kentucky's Rare Species and Communities

Etheostoma tecumsehi

Shawnee Darter

KSNPC Status: Special Concern

USFWS Status: None

General Description: A 2-3 inch long member of the perch family; males display beautiful colors during breeding season.

Habitat: Cobble and gravel riffles in smaller streams.

Range: Globally only known from the Pond River (Green River drainage).

Reason for Protection Status: Highly restricted distribution; found nowhere else on earth but the upper Pond River watershed.

Photo by Matt Thomas

Vitrinizonites latissimus

Glassy Grapeskin

KSNPC Status: Threatened

USFWS Status: None

General Description: Land snail with a shiny, thin and fragile shell that is light to dark brown or olive in coloration. Shape and appearance are similar to a grapeskin, thus the common name.

Habitat: Primarily found on mountains at elevations above 2,000 ft. in moist areas with moss-covered rocks or logs.

Range: North Carolina and Tennessee with very small populations in Alabama, Georgia, Kentucky and Virginia.

Reason for Protection Status: In Kentucky, the glassy grapeskin has a very limited distribution with localized populations found only on Pine and Black mountains.

Photo by Ellis Laudermilk, KSNPC

Key to KSNPC Status Categories:

Endangered: A taxon in danger of extirpation and/or extinction throughout all or a significant part of its range in Kentucky.

Threatened: A taxon likely to become endangered within the foreseeable future throughout all or a significant part of its range in Kentucky.

Special Concern: A taxon that should be monitored because (1) it exists in a limited geographic area in Kentucky, (2) it may become threatened or endangered due to modification or destruction of habitat, (3) certain characteristics or requirements make it especially vulnerable to specific pressures, (4) experienced researchers have identified other factors that may jeopardize it, or (5) it is thought to be rare or declining in Kentucky but insufficient information exists for assignment to the threatened or endangered status categories.

Historic: A taxon documented from Kentucky but not observed reliably since 1980 but is not considered extinct or extirpated.

Paxistima canbyi

Mountain Lover

Photo by Tara Littlefield, KSNPC

KSNPC Status: Threatened

USFWS Status: None

General Description: Low evergreen shrub up to 30 cm tall with smooth opposite leaves and very small green to red flowers; often occurring in colonies.

Habitat: Calcareous rocks and slopes (generally near the top of cliffs or bluffs), rocky woods in the mountains, usually above major streams. Some sites may have a substantial leaf litter layer; others are on ridges that are exposed to high winds.

Flowering Period: Early April to Late May.

Range: Appalachian endemic: occurs in KY, MD, OH, PA, TN, VA and WV.

Reason for Protection Status: Few occurrences occur range wide. Each colony at each site may be a single genet (clones) indicating that there may be as few as fifty-six genetically distinct plants. Fruit development and seed production are reportedly quite rare in the wild. This plant is also susceptible to Euonymus scale. Timber removal is also detrimental, along with exotic pest plants.

Limestone Prairie

Photo by Martina Hines, KSNPC

KSNPC Status: Endangered

General description: Limestone prairies occur on relatively shallow, dry soil where fire, grazing and droughts prevent forests from developing. Prior to European settlement, natural lightning-caused fires as well as human-caused fires were common and spread easily. Extensive grasslands developed and attracted large herds of ungulates, including bison and elk, which helped to sustain the open prairie. Today, remnant limestone prairies are dominated by grasses and forbs such as little bluestem, Indian grass, tall dropseed, rosinweeds, coneflowers and blazing-stars. Some of these native grassland species are extremely rare in Kentucky.

Range: Prior to European settlement, many areas of southwestern Kentucky were dominated by a mix of short and tall grass prairie that made up approximately 2 million acres. The largest remnant prairie east of the Mississippi with circa 20,000 acres is located on the Fort Campbell military reservation along the Kentucky-Tennessee state line.

Reason for Protection Status: With good soil fertility and a rolling to flat topography, pre-settlement prairies were easily converted to agriculture and today almost all have been replaced by row crops. The few remnants left are mostly degraded, invaded by exotic species, and/or lack the appropriate disturbance regime to maintain them.

Key to USFWS Status Categories:

(US) Endangered Species Act of 1973

Endangered: ". . . any species . . . in danger of extinction throughout all or a significant portion of its range . . ." (USFWS 1992).

Threatened: ". . . any species . . . likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (USFWS 1992).

Candidate: Taxa for which the USFWS has ". . . sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened" (USFWS 1999).

Species of Management Concern: Species the USFWS believes are in need of conservation management.

Additional Resources:
KSNPC Species and Community Information ~ www.naturepreserves.ky.gov/inforesources/SpeciesCommunityInfo.htm
NatureServe Explorer ~ www.natureserve.org/explorer/
USFWS Endangered Species Program ~ http://endangered.fws.gov

Second Annual Short's Goldenrod Festival

By Alice Mandt, Environmental Technologist

The nice weather during the Short's Goldenrod Festival made it a perfect day to get outside and enjoy the natural beauty around Blue Licks. This was the second year the Commission partnered with Blue Licks Battlefield State Resort Park to celebrate the successful restoration efforts for one of Kentucky's rarest plants, Short's goldenrod (Solidago shortii).

The morning began with a 5K run and one-mile walk. The challenging course included a long downhill stretch leading to the Licking River, where it flattened onto to a scenic area ending on a woodland trail. The trail portion of the course (0.8 miles) was nice and wide with a medium uphill climb leading runners back to the pavement. To get to the finish line, runners had to traverse a steeper uphill section.

Eighty athletes participated in the race this year, an increase from last year's number of 54. Tim Brett of Georgetown was the first to finish with a time of 17:41. If the name sounds familiar, it's because Tim was the winner last year. His time improved by almost 30 seconds!

East Kentucky Power Cooperative: Live Animal Program ~ Alice Mandt ,KNSPC

As the athletes were crossing the finish line, the farmers' market was being set up. There were offerings from a blueberry farm, handmade jewelry and homemade soaps intertwined with pumpkins, salsa and a lavender farm. A special thank you goes to the River Valley Agritourism Alliance members and marketing director Sandy Marshall.

This year's activities included nature walks through the preserve, canoe trips on the Licking River, a pie-eating contest and a cornhole tournament. Thank you to all the KSNPC employees and John Tierney, a former Kentucky state park naturalist, for leading these great events. Workshops this year included storytelling with Kentucky author George Ella Lyon, a nature sketching class by Amy McIntosh, tomahawk throwing by John Barker and a class on Kentucky archaeology by Gwen Henderson.

A new addition to the festival was a children's activity tent. There were plenty of things for kids to enjoy including pumpkin painting, apple bobbing and tobacco stick painting. Beverly James, the naturalist at Floracliff State Nature Preserve, and some of her coworkers brought sun-sensitive paper. Everyone loved making photographic images without a camera! Another excellent addition to the festival was Albert Bauman. He spent the day teaching kids and adults how to use a pottery wheel. The only time he was without a crowd was when he took a

Canoe Rides ~ Shauna Dunham ,KNSPC

Axe Throwing ~ Shauna Dunham ,KNSPC

break for lunch. Even then, there were anxious eyes awaiting his return.

Missy Toncray from East Kentucky Power was a favorite with everyone. She brought live, native reptiles and amphibians to teach us all about their role in Kentucky's environment. For part of her program, people were allowed to hold some of the animals. It was a great treat to be there when many of the participants touched a snake for the first time! Thank you East Kentucky Power.

Kentucky Life, the KET program celebrating the people and places of Kentucky, was present filming for a story on the history and status of Short's goldenrod. KET has been a source of consistent support for the Commission. When the program is complete we will announce its airtime on the KSNPC Web site calendar.

Thank you to Gunpowder Creek for closing the day with wonderful music and to our partners at Blue Licks who helped plan and make this event a success. It was a great day for all those who attended. It looks like this will be an annual event, so please join us on September 20, 2008 for another day of celebrating the comeback of Short's goldenrod and learning about Kentucky's unique natural heritage.

Pie Eating Contest ~ Alice Mandt ,KNSPC

Pumpkin Painting ~ Alice Mandt ,KNSPC

Sun Prints ~ Alice Mandt ,KNSPC

Farewell to Heather Housman

By Don Dott, Executive Director

We are sad to see Heather Housman resign from the Commission and her role as the Landowner Incentive Program (LIP) coordinator. But it was for a very good reason. Heather is now the proud mother of a very cute little baby girl. Heather was very successful as LIP coordinator. Two of her more memorable and successful projects both involved the removal of invasive species that were choking out native wildflower populations on private lands. With the assistance of LIP crews and funding, Heather increased critically imperiled plant populations of yellow gentian (*Gentiana flavida*) by an impressive 300%. A globe bladderpod population (*Lesquerella globosa*) was at least doubled at these sites. Heather also worked to improve the habitat at many other sites for about 20 different plant species. Her talents and achievements with LIP will be greatly missed. Hopefully she will continue her good work in her own backyard – as the baby permits. Our best wishes go to Heather and her family!

Yellow gentian ~ Marc Evans, KSNPC

Director's Notes

By Don Dott, Executive Director

The pendulum swings. This is not a tale of suspense by Edgar Allan Poe, but a political reality. The environment was a major issue, probably *the* issue after the Vietnam War in the 1960's and 70's. Events such as the Cuyahoga River in Ohio catching fire and DDT threatening the loss of our nation's symbol, the bald eagle, stirred the American public's awareness of the need for environmental protection. In the midst of this era, the Nature Preserves Act was passed by the Kentucky General Assembly in 1976. Then came the 80's, the 90's, the new millennium, and the environment faded from the public consciousness. Now there is a new issue to face, global climate change. Just like the 60s and 70s, it has taken an issue that the public can recognize as a real and visible threat for the pendulum to swing back to green. And not a moment too soon, as the severe effects of global warming will disrupt not only weather patterns but people's lives.

How do we keep the pendulum on the green side, or push it even further along? Teach people to care through outreach and personal action. Turning off one light or TV, or replacing an incandescent bulb with a compact fluorescent bulb may seem trivial, but if every one of Kentucky's more than 4.2 million people cared to take a small step like that, a big change would occur. It's just that simple. Everyone needs to do their part no matter how small it may seem, because none of us live on this planet alone. It's so easy to think you only can affect change in your own little world, but fortunately that's not the case.

How can we green our lifestyle? It only requires simple changes in the way we do things. Buy local foods when you can. Raise the thermostat a few degrees in summer and lower it in the winter. Use a clothesline to dry your laundry. Get out of the car (or truck, or SUV) and consolidate trips. Turn off the TV and computer and take a walk. Plant a native flower or tree and let a corner of your yard go wild. Notice the varied life that appears. Watch it change over the course of the year, spring flowers yielding to summer's butterflies, to autumn's spider webs. Start a compost pile. Use mulch instead of chemical fertilizers or pesticides. All those little actions really do make a difference.

Federal funds are ending for the Landowner Incentive Program (LIP) staff position at the Commission that I will ask the General Assembly to restore. How does this relate to what I've been talking about? Our LIP staff member works directly with private landowners for the benefit of rare species. About 93% of Kentucky's landscape is privately owned. Only with the assistance of private landowners will our efforts for biodiversity conservation be successful. Working with one landowner at a time, each individual contribution adds up. Some are bigger than others, but it will take *many, many* landowners doing their part, small and large, to reduce erosion and improve water quality, to better manage our forested lands, to cease destroying wetlands, to restore degraded ones, and to protect and expand our prairie and barrens remnants. A cow out of the creek here, less lawn pesticide over there, these are some simple steps landowners can take. Preserving lots of little pieces are the only way the biodiversity puzzle can be held together. Small changes are good ones - they last - and are the real key to a better world.

KENTUCKY STATE NATURE PRESERVES COMMISSION

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December 12, 2007
KSNPC Frankfort Office
10:00 AM EST

Kentucky State Nature Preserves Commission
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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.

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