

Naturally Kentucky

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KSNPC Latest News: The rich and diverse aquatic fauna of Kentucky are under pressure by the spread of several nuisance aquatic animals. Zebra mussels, Asian clams and carps all pose a threat to Kentucky's native aquatic fauna. (Complete story on page 2)

☒ On February 24th, the hemlock woolly adelgid (*Adelges tsugae*) was discovered at Blanton Forest State Nature Preserve in Harlan County. This aphid-like insect pest was found during a volunteer day survey. (Complete story on page 6)

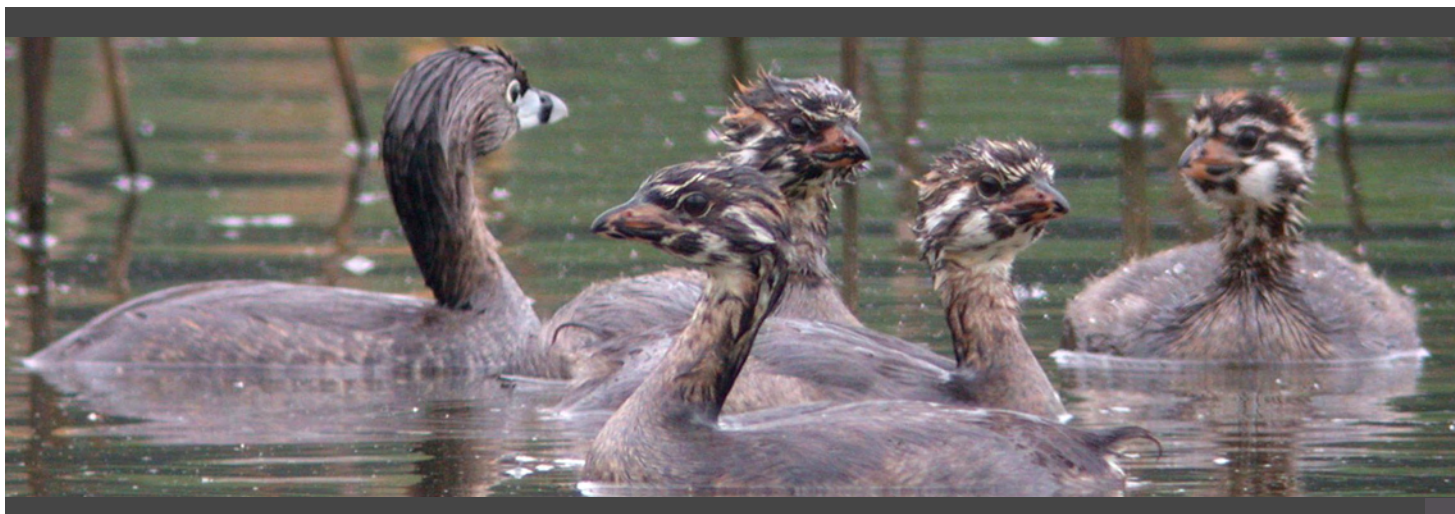
☒ Portions of State Forest and National Forest land have been enrolled in the Commission's Natural Areas Registry program. (Complete story on page 7)

☒ Kentucky Educational Television's *Kentucky Life* program on KETI will feature a segment on Murphy's Pond, the best surviving bald cypress swamp in Kentucky. Air dates are scheduled for Saturday, May 26, 2007 at 8 p.m. EDT and Sunday, May 27, 2007 at 4:30 p.m. EDT. The *Kentucky Life* program also will feature a segment on rare butterflies which will air on Saturday, June 16, 2007 at 8 p.m. EDT and Sunday, June 17, 2007 at 4:30 p.m. EDT.

☒ Hikes are scheduled this spring and early summer at a number of the state nature preserves. Visit our online Events Calendar to learn more www.naturepreserves.ky.gov/events.

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Pied-billed Grebe (*Podilymbus podiceps*) at Cheney Lake SNP ~ David Roemer

NUISANCE *Aquatic* ANIMALS IN KENTUCKY

By Ryan Evans, Aquatic Biologist

Many of us have watched nature shows and gotten glimpses of the animals in exotic rainforests, but you don't need to go to the equator to see rainforests of diversity. You might not know that the southeastern United States is in fact a rainforest of its own in terms of aquatic animals. The state of Kentucky has 103 species of freshwater mussels, a group of animals with a level of diversity equaled nowhere else in the world. The commonwealth has over 250 documented native species of fish, and over 60 species of freshwater snails and crayfish each. Kentucky also has several types of fish and crayfish that are found nowhere else in the world (species that are called "endemic" to the state).

One of the challenges we face as a society is how to safeguard and preserve this biological diversity in the face of drastically altered aquatic habitats (e.g. dams, stream channelization), habitat degradation (such as silt runoff into streams) and water pollution in many areas of the state. Our native fauna face another threat in the form of exotic aquatic animals, i.e., species that are not native to the state of Kentucky and are becoming "nuisance" species.

Perhaps the most well-known nuisance aquatic animal is the zebra mussel (*Dreissena polymorpha*). This European species arrived in ships' ballast water in Ontario and Michigan's Lake St. Clair during the late 1980s. Since that time, it has spread across the continent. Unlike our native mussels, the zebra mussel and a similar exotic species, the quagga mussel (*D. bugensis*), have a different mode of reproduction. Like barnacles, the larvae these animals produce settle on hard surfaces, overwhelming sessile native species with their sheer numbers alone. Zebra mussels have caused great disruptions to our native mussel fauna in the U.S., significantly reducing or eliminating mussels altogether in some parts of the country. The Asian clam (*Corbicula fluminea*)

is also a problematic, nuisance species and has invaded many waterways in Kentucky.

Another group of exotic species causing great concern to many people is carps. Carps originate from southeastern Asia and are members of the minnow family. The well-known common carp (*Cyprinus carpio*) can indirectly stir up high amounts of silt in its feeding activities. This increased turbidity and silting in the water (and direct effects from feeding) can reduce or eliminate aquatic plants as well as affect spawning of our native fishes by creating unfavorable conditions (e.g., smothering) for the eggs. Two carps in particular, the silver carp (*Hypophthalmichthys molitrix*) and bighead carp (*H. nobilis*) have made recent news with their habit of leaping from the water when they sense approaching watercraft. These carps are filter feeders but have the ability to switch to eating other food items when zooplankton numbers are low. They can grow to over 60 pounds! A fish of this size requires an enormous amount of food resources to survive. They are expected to compete directly with our native filter feeding fishes and pose a long-term, perhaps permanent, threat. This threat is also relevant to boaters and fishermen due to the potential of bodily harm resulting from the carps' dangerous leaping activities, as well as causing damage to expensive fishing nets used by commercial fishermen.

These are just a few of the aquatic invaders we have in Kentucky. Others exist and more will likely be reaching the commonwealth in the future due to accidental or intentional releases. As a citizen, it is important to become aware of the threat of these species and to do what you can. Prevention is the best remedy we have to this problem. Once these exotic animals become established, they can persist indefinitely in our state. If you enjoy keeping fish in aquariums, learn about your pets' native



Zebra Mussel (*Dreissena polymorpha*) ~ U.S. Geological Survey, www.forestryimages.org

Common Carp (*Hypophthalmichthys molitrix*)~ KSNPC Staff





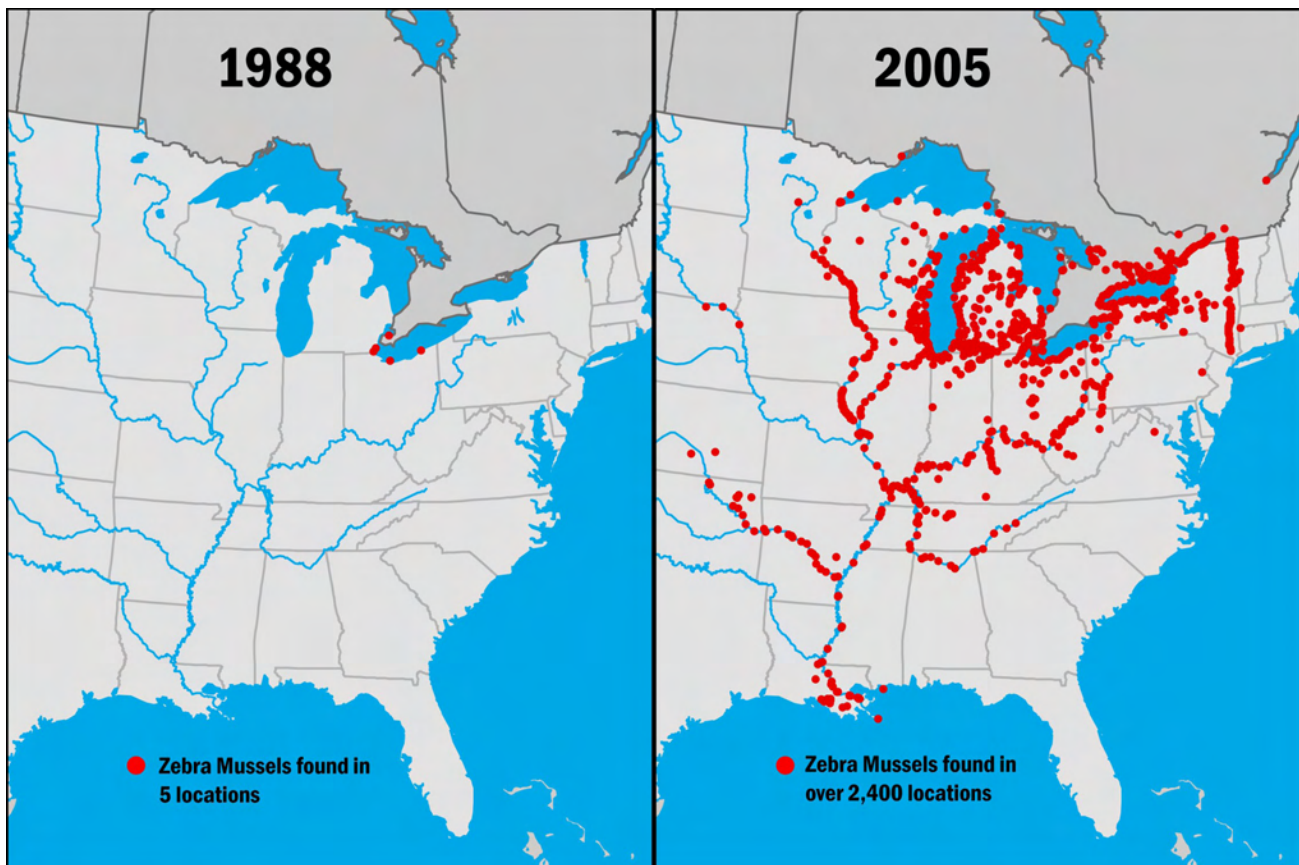
Zebra mussels (*Dreissena polymorpha*) on a pink heelsplitter (*Potamilus alatus*) ~ Gerald Mackie

released into the wild.

To help get a handle on this problem, Kentucky has recently developed an Aquatic Nuisance Species Task Force (KY-ANSTF). This group of biologists and commercial fishery industry representatives has identified many of the existing and future threats in terms of nuisance species. They have also outlined steps that can be taken to prevent future introductions. A KY-ANSTF Web site is planned for the future, as well as a paper highlighting the issues related to aquatic nuisance species in our state, which species are involved and potential actions that might be taken to minimize problems for our native species.

origin. Nearly all fishes bought in pet stores are not native to Kentucky. If they aren't native, make sure they do not get

There is a great deal of information available about aquatic nuisance species, particularly on the World Wide Web. Citizens are encouraged to learn as much as possible to help combat the threats posed to our natural heritage.



Data Source: U.S. Geological Survey, 200506, Zebra Mussel Distribution in North America: National Atlas of the United States, Reston, VA.

Web resources:

- * Florida Integrated Science Center of the U.S. Geological Survey, Gainesville, FL: <http://cars.er.usgs.gov>
- * Aquatic Nuisance Species of the Mississippi River Basin: <http://www.ux.cerc.cr.usgs.gov/MICRA/anspaper.pdf>
- * Information from the U.S. Environmental Protection Agency on Asian carps: <http://www.epa.gov/glnpo/invasive/asiancarp>
- * Web site about the Asian clam, a nuisance exotic species: <http://www.iisgcp.org/EXOTICSP/Asianclam.htm>



IN THE SPOTLIGHT: KENTUCKY'S RARE SPECIES AND COMMUNITIES

Etheostoma susanae Cumberland darter

KSNPC STATUS: Endangered

USFWS STATUS: Candidate for Listing as Endangered or Threatened

GENERAL DESCRIPTION: A slender, 2-3 inch long fish that is a member of the perch family (Percidae).

HABITAT: Sandy pools and runs with cobbles and boulders in small to medium-size streams.

RANGE: Restricted to the Cumberland River system upstream from Cumberland Falls in Kentucky and Tennessee.

REASON FOR PROTECTION STATUS: Habitat degradation and loss.



Photo by Matt Thomas

Papaipema undescribed species # 5 Rare Cane Borer Moth

KSNPC STATUS: Threatened

USFWS STATUS: None

GENERAL DESCRIPTION: Adult moths are light brown with a few small, white spots typical of *Papaipema* species.

HABITAT: Cane breaks in extreme western Kentucky.

LARVAL FOODPLANT: Giant cane (*Arundinaria gigantea*).

FLIGHT SEASON: Mid-October.

RANGE: Isolated populations in Kentucky, Mississippi, Missouri and Tennessee.

REASON FOR PROTECTION STATUS: Globally rare with isolated populations in a limited geographic area. In Kentucky, it is known only from a handful of sites in extreme western Kentucky.



Photo by Ellis Lauder milk, 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.



Cymophyllus fraserianus Fraser's Sedge

KSNPC STATUS: Endangered

USFWS STATUS: None

GENERAL DESCRIPTION: A perennial herb with strap-shaped, thick, flat blades.

HABITAT: Rich mountain woods, cove forests, and along streams at the base of mountain slopes.

FLOWERING PERIOD: Early May to late June.

RANGE: Generally Appalachian states with Kentucky at the western and northern extreme of the range.

REASON FOR PROTECTION STATUS: Very narrow range and few known populations.



Photo by Heather Housman, KSNPC

Shawnee Hills Sandstone Glade

KSNPC STATUS: Endangered

GENERAL DESCRIPTION: This is a very small community (up to a few acres in size) on level or gently sloping terrain with usually a south to west facing aspect. This community is extremely dry and remains mostly open due to droughty, thin soils and exposed sandstone bedrock. Large colonies of lichens and mosses dominate the community, but pockets or depressions in the bedrock where soil can develop, support prairie grasses such as little bluestem and broomsedge. These pockets can also harbor forbs such as Willdenow's rushfoil, pinweed, rough buttonweed, and narrowleaf pinweed. Due to such droughty conditions, trees and shrubs such as red cedar, Virginia pine and redbud struggle to grow and often are gnarly and stunted.

RANGE: In Kentucky this community is restricted to the Shawnee Hills physiographic region of Kentucky. This region extends into Indiana and Illinois where this natural community can also be found.

REASON FOR PROTECTION STATUS: This community is small, rare and restricted in range.



Photo by Matina Hines, KSNPC

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>

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.



VOLUNTEER DAY AT BLANTON FOREST STATE NATURE PRESERVE

By Alice Mandt, Environmental Technologist

Hemlock woolly adelgid (*Adelges tsugae*) has recently been found at Blanton Forest and five other state nature preserves in Bell, Letcher and Harlan counties. With a total of over 10,000 acres to check for infestations, the Kentucky State Nature Preserves Commission is relying heavily on volunteers to help survey the preserves.

On February 24, 2007, people from Lexington, Louisville, Richmond and Harlan County showed up to help survey three drainages in the Watts Creek watershed. The survey plan protocol used was adapted by Merrill Flanary of the Kentucky Natural Lands Trust from a methodology designed by Scott Costa from the University of Vermont. Merrill started the day with a short training session where she explained the survey process and how to locate infested branches.

Sadly, evidence of infestation by the hemlock woolly adelgid was found in two of the three drainages examined that day. The third drainage surveyed is in a more isolated area of Blanton Forest and fortunately showed no signs of infestation yet. KSNPC is currently looking at ways to control hemlock woolly adelgid on the preserves.



Hemlock woolly adelgid ~ Connecticut Agricultural Experiment Station Archives



Volunteers looking for Hemlock woolly adelgid ~ Alice Mandt, KSNPC



The volunteer team at Blanton Forest SNP ~ Alice Mandt, KSNPC



LAND PROTECTION REPORT

By Ron Scott, Land Protection Specialist

At the most recent meeting of the Kentucky State Nature Preserves Commission in Frankfort, Director Don Dott presented state forester and director of the Division of Forestry, Leah MacSwords, with a plaque acknowledging the enrollment of 75 acres of the Pennyrile State Forest into the Natural Areas Registry program. The five separate sites included in the Natural Areas Registry Agreement are clustered within a one square mile area south and southeast of Pennyrile Lake and west of Clifty Creek in Christian County. By agreeing to have the sites registered as natural areas, the Division of Forestry acknowledged the areas' ecological importance and voluntarily committed itself to their protection. Expanded protection of the sites will ensure critical habitat for plants and animals but also continued recreation such as hiking, hunting, and bird watching for visitors.

The Clifty Creek sites include rare natural communities, including limestone barrens and prairie remnants, and support two species considered threatened in Kentucky: swamp metalmark (*Calephelis muticum*), a butterfly and Carolina larkspur (*Delphinium carolinianum*), a flowering plant. The five sites also are home to a variety of more common plants and animals.

"Collaborative conservation efforts between the commission and other agencies, such as the Division of Forestry, who own important natural lands are critical to providing meaningful and lasting protection for rare species and natural communities that occur in Kentucky," Dott said.

During the same time frame the commission was working with the Kentucky Division of Forestry on the Clifty Creek agreement in western Kentucky, we were also seeking a Natural Areas Registry

agreement with the USDA Forest Service in far southeastern Kentucky. Many Kentuckians are unaware that although the vast majority of the 1 million-plus-acre Jefferson National Forest is located in Virginia, approximately 800 acres occur just over the state line in Letcher County, Ky., adjoining our Bad Branch State Nature Preserve. This Kentucky part of the Jefferson National Forest is managed by the Clinch Ranger District, based in Wise, Virginia.

A portion of this area was enrolled in the Natural Areas Registry program earlier this year and is referred to by the commission as the Poor Fork Wetland. The 36-acre site is a wetland and Appalachian bog complex that is quite rare in Kentucky. The Appalachian bog community is considered endangered in the state by the commission. The area supports a unique and diverse insect community containing several species considered rare in the state, including the Eastern red damsel (*Amphiagrion saucium*) and the zebra clubtail (*Stylurus scudderii*). In addition, the Blackside dace (*Phoxinus Cumberlandensis*), a U.S. Fish and Wildlife Service threatened species, is also known from the Poor Fork of the Cumberland River adjacent to the wetland. The flora of the site has not yet been fully inventoried, but the habitat is suitable for a number of rare plants known from the area.

The Kentucky Natural Areas Registry Program, managed by the commission, was established in 1984. It is designed to encourage the stewardship of ecologically significant properties whose owners agree to protect rare species and natural communities that are present. Sixty properties covering some 4,894 acres in 39 counties are currently enrolled.

DIRECTOR'S NOTES

By Don Dott, Executive Director

House Concurrent Resolution (HCR)120, passed by the 2006 General Assembly, created the Land Conservation and Stewardship Task Force. Its directive is to assess the need for land conservation in Kentucky and to investigate ways to finance it. HCR 120 proclaims:

WHEREAS, Kentucky is a land of scenic beauty and diverse topography; and

WHEREAS, Kentuckians value the unique qualities of their land and want to pass that legacy on to their children and grandchildren; and

WHEREAS, we are currently converting over 130 acres of forests, fields, agricultural land, wildlife habitat, and other natural areas per day to urban uses; and

WHEREAS, there is a need to address this issue while the opportunity for solutions still exists.

The task force, which did not see its members appointed for six months, convened its first meeting January 23. This was a basic informational meeting with representatives from existing state conservation programs describing their accomplishments and needs. These included the Commission, the Division of Forestry, the Kentucky Department of Fish and Wildlife Resources, the PACE program (Purchase of Agricultural Conservation Easements), and the Kentucky Conservation Committee, which spearheaded the resolution creating the task force. The second meeting of the task force is scheduled for April 24. The task force is to report its findings to the General Assembly by June 30, 2007.

I have high hopes for the task force. While we are fortunate to have the Heritage Land Conservation Fund as our primary funding source for natural areas acquisition in Kentucky, more is needed.

(Continued on page 12)



Even with the Heritage Fund, Kentucky is last when compared to the seven surrounding states in the acres of land conserved for their natural qualities. This translates to about 1% of the state's landmass in state ownership. When federally-owned lands including military reservations are counted, the figure increases to about 7.5 percent. The Heritage Fund provides grants to local government entities, state agencies and non-profit organizations. The Fund typically finds itself with substantially more requests for funding than there are dollars available. Larger projects often have to wait through several quarterly cycles to be fully funded. And time is not always an element in abundance when land sales are the subject.

Legislative Research Commission staff working for the task force are seeking to have officials from two neighboring states, which have been more successful at funding land conservation, explain their programs and how they were created. We do not need to

reinvent the wheel, but we do need one that will travel well in a Kentucky venue. The Trust for Public Land reports that nationwide 80 percent of ballot initiatives to fund conservation are passed by the public. Often these measures impose additional taxes to fund land or conservation projects. Self-imposed taxes! Democracy at work! Clearly, conservation is a national priority. It would seem the public is due more credit than it sometimes gets.

Let's hope that when the task force has finished its work and laid out a financing plan for consideration by the General Assembly that there is sufficiently vocal support to ensure its passage. It will benefit us in our lifetimes, and the generations who inherit this land after us. Keep an eye out for a conservation-funding bill in the 2008 session, and I will keep you apprised on our web site. You can help be a part of its passage with phone calls, letters or personal visits to your state representative and senator.

IN THE FOOTSTEPS OF LUCY BRAUN

The Pine Mountain Settlement School is offering a four-day forest study workshop titled "IN THE FOOTSTEPS OF LUCY BRAUN." The program discusses the work of the eminent ecologist and retraces her visits to eastern Kentucky. Her theory was that the Mixed Mesophytic Forest is a remnant of the great Tertiary Forest and the originator of all eastern North American deciduous forests that exist today. The workshop includes outings to Blanton Forest State Nature Preserve and Bad Branch State Nature Preserve. The workshop will be offered twice this year - June 6-10 and August 15-19. For more info:

www.pinemountainsettlementschool.com or 606-558-3571 / 558-3542

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Kentucky State Nature Preserves Commission

Quarterly Public Meeting

June 13, 2007

Pine Mountain State Resort Park

Pineville, KY (Bell County)

3:00 PM EDT

How to contact the Kentucky State Nature Preserves Commission:

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Visit us online @ www.naturepreserves.ky.gov

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

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