

Naturally Kentucky

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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.

Geographic Information Systems Help the Commission Meet its Mission

by Greg Abernathy
GIS Specialist

Geographic Information Systems (GIS) have provided the Commission with new tools that aid us with everything from species tracking and monitoring to preserve design and management. GIS is a system of computer software, hardware, data and trained personnel that allows for data creation, modification and analysis. Data in the system are stored in real world coordinates that enable us to integrate data from other agencies and organizations. The modeling and mapping capabilities of a GIS can provide insight into species and ecological communities and allow for assessment of threats to their continued existence.

Traditionally KSNPC has used paper maps, DOS databases, blue line survey plats and Mylar overlays to assist with monitoring, tracking and decision making. Since its inception, the Commission has utilized various methods to develop the Kentucky Natural Heritage Program (KYNHP) Database, a database of species, ecological communities, managed areas and ecologically significant sites. In the early 1980s, the KYNHP Database was migrated/converted to the Biological and Conservation Data System (BCD), a DOS database developed by The Nature Conservancy. United States Geological Survey (USGS) 7.5-minute topographic paper maps were used in conjunction with BCD to provide a means of storing the locations of features maintained in the database.

In the late 1990s, the Commission began utilizing ArcView, Environmental Systems Research Institute's (ESRI) desktop GIS application. ArcView provided a suite of new tools and offered the ability to begin storing feature locations digitally in real world coordinates. The advent of desktop GIS capabilities has led to the development of new tools and applications over the last few years by NatureServe, the coordinating organization of the Natural Heritage Network. In 2002, the KYNHP Database was migrated to Biodiversity

Tracking and Conservation System (BIOTICS), a custom ArcView application developed by NatureServe. The database was upgraded in June 2003 to BIOTICS 4, the latest version from NatureServe that integrates ArcView and Oracle, two industry standard applications. BIOTICS 4 provides much more functionality and flexibility, enabling greater utilization of our database. The KYNHP Database currently contains 10,738 species and ecological community records, 507 site records and 496 managed area records. The Commission's implementation and utilization of BIOTICS 4 enables its data to be more readily compiled with data from other members of the Natural Heritage Network, thus allowing for aggregation of data across political boundaries.

Desktop GIS applications along with the quality and quantity of spatial data available for Kentucky have made GIS a tool that nearly all staff utilize. The migration to GIS and the creation of a spatial natural heritage database have provided us with a means of developing predictive models that help identify potential species habitat and target field surveys, improved environmental review and data request procedures, enhanced preserve designs, improved preserve management, and enabled us to create higher quality cartographic products. The Commission plans to provide more information on its use of GIS, along with a map gallery, via our newly designed website (www.naturepreserves.ky.gov). Visit the News and Events section of our website to view a poster which contains examples of many of our GIS applications.

GIS and Conservation Websites:

- NatureServe - www.natureserve.org
- Society for Conservation GIS - www.scgis.org
- ESRI Conservation Program - www.conservationgis.org
- The Conservation Fund's Conservation GIS site - www.conservationgis.com
- Kentucky's Geography Network - <http://kygeonet.ky.gov/>

Ed Craft Receives 2003 Volunteer Steward Award

by Joyce Bender

Ed Craft received the Commission's Volunteer Steward award during the quarterly meeting in Frankfort on Dec. 2, 2003. The Nature Preserves and Natural Areas Branch staff nominated Ed unanimously for the award. This award is long overdue for Ed. He has been helping us take care of nature preserves since 1992. For the past 11 years, Ed has devoted countless hours assisting with the management of preserves in the Bowling Green region and a few beyond. Ed started out helping with a trail building project at Vernon-Douglas State Nature Preserve (SNP). He enjoyed the work enough to ask how else he might help and after hearing a list of what was needed, decided to become a preserve monitor. He was assigned Raymond Athey Barrens SNP and later took on Flat Rock Glade SNP. Both preserves were in good hands during his tenure. Preserve management staff were in good hands too, after Ed donated ten fire resistant Nomex® suits for use when conducting prescribed burns.

Ed is a jack-of-all-trades and that attitude has served us well on the preserves. He does whatever needs to be done. He has helped build firebreaks and participated as a burn crew member. He assisted with renovations to the Renfro House at Brigadoon SNP, helping to paint the exterior and replace the gutters. He has cleared cedar trees, cleaned up trash and recruited more volunteers. He also finds time to maintain habitat for a rare plant. The woods behind their house harbor *Trillium pusillum*, the least trillium, a state endangered plant.

Ed is also a talented woodworker and artist. He enjoys writing, photography, fishing and kayaking. His writing about our work and the preserves has inspired us. His art reflects his love of the natural world. He continues to be a source of encouragement, weaving into his stories insightful observations of the life he finds on our preserves, and his hope for our success at protecting these places for the long term.

We knew Ed was special when we read his volunteer application form. For the question asking what he hoped to gain from the volunteer experience, Ed wrote that he wanted to get "a sense of relief for helping slow the destruction of a beautiful and diverse bio-region." We hope he has found that and more after all these years. Working with Ed has given us a sense of relief, knowing that others share our goals and will work with us to accomplish them.

2003 Biological Diversity Protection Award to Tom FitzGerald

by Cecilia Mitchell

Each year, the Kentucky State Nature Preserves Commission (KSNPC) selects an individual to honor for their work in protecting the biological diversity of our Commonwealth. The recipient of the Biological Diversity Protection Award for 2003 is Mr. Tom FitzGerald, executive director of the Kentucky Resources Council (KRC).

FitzGerald began his work protecting Kentucky's environment in the 1970s with the Appalachian Research and Defense Fund. He established KRC in 1984 and has been its director to this day. KRC is a private, non-profit environmental advocacy organization that provides resources - legal, technical and advisory - to individuals, communities, and social justice organizations on environmental issues that affect their quality of life.

According to KSNPC chair Clara Wheatley, "Fitz's" name has become synonymous with environmental protection in Kentucky. His expertise spans the full breadth of environmental protection issues: surface and underground coal mining; air and water quality; solid, hazardous and radioactive waste; zoning and land use planning; and many non-environmental issues with a "green" impact.

FitzGerald was a leader in the cause to successfully reform the broad form deed law in Kentucky. He has been involved in several "Lands Unsuitable for Mining" petitions filed under the surface mining program including the 1998 petition to protect the significant upper elevations of Black Mountain in southeast Kentucky - our state's highest elevation and a place of significant biological importance. More recently, in 2000 he filed the successful lands unsuitable petition on behalf of the Pine Mountain Settlement School, which helped inspire the school to dedicate the James E. Bickford State Nature Preserve in September 2003.

For his unceasing efforts to protect the environment for more than 25 years and for having accomplished as much as anyone in the history of Kentucky to protect and conserve our native biological diversity, KSNPC presented the 2003 Biological Diversity Protection Award to Tom FitzGerald at the Commission's December 2003 quarterly meeting.

To commemorate the award, FitzGerald was given a framed reprint of an original James Archambeault photograph of Bad Branch Falls State Nature Preserve appropriately inscribed.

Kentucky Educational Television
(KET1 and KET2)
presenting
Kentucky's Last Great Places
Saturday, March 6, 2004 at 8 p.m. EST

The **Kentucky State Nature Preserves Commission** (KSNPC) is pleased to have contributed to the production and locational assistance for a spectacular program airing on **March 6 throughout the Commonwealth on both KET1 and KET 2.**

Described by KET as, "A rare opportunity to journey to some of those few remaining places that look much as they did when the first European settlers began arriving in Kentucky. Inspired by the book *Kentucky's Last Great Places*, written and photographed by Thomas Barnes, this program covers hidden areas from every corner of the Commonwealth. A 2004 KET production, hosted by Dave Shuffett."

We encourage anyone interested in natural areas and the condition of our state's environment to make plans to watch this television program. It is informative as well as beautiful and will hopefully serve as a reminder to us all of how precious our dwindling natural resources are.

Additionally, if you haven't seen Dr. Barnes' book, *Kentucky's Last Great Places*, you should run not walk to your neighborhood bookstore or library and pick up a copy. The book boasts not only its beautiful photography, but also includes statistics and presents current scientific findings regarding Kentucky's delicate ecosystems.

To view the online information about this program, visit KET at <http://www.ket.org/cgi-plex/watch/?date=2004-03-06+18:00>. For general KET programming information, visit them online at <http://www.ket.org/>.

This program is being featured on KET as part of their fund-raising telethon. Viewers can demonstrate their support for this type programming and for KET by pledging a donation to KET during the show. Individuals and organizations can support the efforts to preserve Kentucky's natural areas and native species by donating to the Kentucky State Nature Preserves Commission. **Visit KSNPC online at <http://www.naturepreserves.ky.gov/>** for information on our ongoing work and how you can help.

Mussel Decline in Horse Lick Creek Studied

by Ronald R. Cicerello

In July 2003, a small army (25-30) of biologists representing Eastern Kentucky University, the Kentucky Division of Water, U.S. Forest Service, U.S. Fish and Wildlife Service (USFWS), Virginia Polytechnic Institute and State University (VPI), and The Nature Conservancy (TNC) assembled in Berea in preparation for a week-long study of the freshwater mussels of Horse Lick Creek. Located within the Daniel Boone National Forest (DBNF) in Jackson and Rockcastle counties and a tributary to the Rockcastle River, Horse Lick Creek was a refuge for more than 20 mussel species, including several considered rare by the USFWS and the KSNPC. Several of these species had declined or had been lost from much of the Cumberland and Tennessee river systems. Horse Lick Creek was envisioned as the source of mussels for the re-colonization of Rockcastle River and it became Kentucky's first "bioreserve" in the early 1990s. Subsequently, the Kentucky Chapter of TNC and the DBNF spent considerable time and money addressing water quality and land use problems (e.g., eroded stream banks, off-road vehicle trails, degraded riparian areas) in the watershed that negatively impact aquatic systems. Despite these efforts, studies by Dr. James Layzer, Tennessee Technological University, showed the mussel community had declined significantly in the past few years. Our group was assembled to confirm or refute this disturbing news.

The study was designed to yield estimates of mussel density in the entire lower 13 miles of the stream in both pool and flowing water habitats. Stream teams from VPI walked the channel identifying, measuring and marking each habitat type. The stream was divided into four segments and a team of biologists was assigned to each segment. We searched for mussels in 0.25 square meter quadrants along a number of channel-wide transects in every fifth flowing water habitat and every tenth pool habitat. After the last day, we had collected hundreds of quadrant samples and were all exhausted. Although data from the study have not been analyzed, they appear to corroborate Dr. Layzer's finding – the mussel fauna has indeed declined. A few years back, one could sample a riffle in Horse Lick Creek and expect to find numerous individuals of several mussel species. We found living representatives of about one-third of the species known from Horse Lick Creek, but few individuals of each. The mussel community in yet another Kentucky stream has been severely degraded and several rare species have been pushed closer to extirpation or extinction.

The results of the study and an analysis of factors responsible for the decline should be available in 2004. They will be reported in our newsletter.

Available now...

A Guide to the Freshwater Mussels of Kentucky

Ronald R. Cicerello and Guenter A. Schuster

A Guide to the Freshwater Mussels of Kentucky is the state's only complete reference to this diverse and highly imperiled group. Designed for anyone interested in aquatic organisms, this 62-page guide provides information on each of the 104 mussel species documented from Kentucky. Introductory text and figures briefly describe mussel biology, anatomy, life history, importance, and conservation, and provide guidance on making field observations. Accounts for each species include a color image, shell description, habitat, distribution, similar species, and conservation status. Lists of references and additional literature on Kentucky mussels are included. This 8.5 x 11 inch guide is published as contribution number 7 to the Kentucky State Nature Preserves Commission Scientific and Technical Series (ISBN -0-9673646-6-3) To Order: *A Guide to the Freshwater Mussels of Kentucky*. 2003.

Please send ___ copies of *A Guide to the Freshwater Mussels of Kentucky* @ \$6.00 per copy including tax, shipping, and handling.

Name _____

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Make check payable to "Kentucky State Treasurer" and mail to:

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Director's Notes

by Don Dott
Executive Director

When I think back over the last year and how to summarize it, a movie title comes to mind – *The Good, the Bad and the Ugly*, a well known Clint Eastwood western. *The Good* is easy enough to find. Just recently, at our December commission meeting, we gave two awards. The Stewardship Volunteer of the Year Award was presented to our good friend, Ed Craft, and the Biological Diversity Protection Award was given to our long time proponent and champion, Tom FitzGerald. Both of these gentlemen are an inspiration to us. I could say much more about Ed and Fitz, and should, but I have to abide by space limits. Also among *The Good* was the discovery by our invertebrate biologist, Ellis Laudermilk, of three state record moths and one state record damselfly. And there was a rediscovery this past year by Martina Hines of Sundew, or *Drosera intermedia*, an insectivorous plant not seen since the 1890s! Another *Good* is the dedication of the James E. Bickford SNP at Pine Mountain Settlement School, and the public opening of the trail at Brigadoon SNP. Being an optimist at heart, I could go on with the *Good* for the rest of this article, but the movie title demands two more categories.

Under *The Bad* was the loss of David Skinner to a position in New York. But after being in the job, he soon realized it wasn't what he wanted and we got our Central Regional Preserve Manager back in Kentucky where he belongs. A *Bad* turned *Good*! Unfortunately, other *Bads* exist. Our aquatic biologist, Ronald Cicerello reported on a serious decline in the mussel fauna in Horse Lick Creek (see related article in this newsletter), a stream that had been looked at as a potential source for restocking other streams. Perhaps it can be turned into an alert for the need to work even more vigorously for improved water quality. There is a gamut of action you can take. From the long range, like contacting your congressional and state legislators to tell them you support improved water quality, to a more immediate action - eliminating any harsh chemicals that go down your home drain or are used on your lawn or garden. You can help!

And now for the last category, *The Ugly*. This can be nothing other than the state budget. Last year's deficits mean we are again facing significant budget cuts for the remainder of this fiscal year. And we expect budget reductions of a major nature for the next two years that will affect all of our operations. I can think of no better word to describe this situation than *Ugly*! But maybe, like *The Bad*, we can extract a positive from the situation and use it as incentive to work harder and smarter, and target our resources more carefully. Stay tuned, there will be many *Goods* to report in 2004! And think about volunteering at a preserve near you. Maybe you will be the winner of the 2004 Volunteer Steward Award.

Welcome to LaJuana S. Wilcher and the Environmental and Public Protection Cabinet

Gov. Ernie Fletcher has reorganized the former Natural Resources and Environmental Protection Cabinet into the new Environmental and Public Protection Cabinet (EPPC). Serving as cabinet secretary is LaJuana S. Wilcher.

Wilcher is a biologist and environmental lawyer with almost three decades of experience in environmental and natural resources issues. She began her career with the U.S. National Park Service, served in President Reagan's Administration, and was nominated by President George H.W. Bush to be Assistant Administrator for Water at the U.S. Environmental Protection Agency (EPA).

During Wilcher's time in Washington D.C., she managed EPA's national water programs, including planning, policy and program management for the nation's drinking water, waste water, ground water, oceans and estuaries. Wilcher also was responsible for EPA's wetlands program, managed EPA's negotiations on the \$1.1 billion Exxon Valdez oil spill settlement, and led U.S. delegations to international water conferences and events.

Before being selected by Gov. Fletcher, Wilcher was with the English, Lucas, Priest & Owsley law firm in Bowling Green. In private law practice, she advised companies, municipalities, small businesses and not-for-profit organizations on a range of environmental and natural resource issues. She also serves as an adjunct professor of environmental law courses at Vermont Law School.

Wilcher received a biology degree from Western Kentucky University, then a law degree from the Chase College of Law at Northern Kentucky University. In addition to her work at EPA, Wilcher also served as a special assistant to the general counsel at the U.S. Department of Agriculture, and as a naturalist for the U.S. National Park Service at Mammoth Cave National Park.

Visit EPPC online at <http://www.environment.ky.gov/> for information and updates on important environmental and public protection topics.

Land Protection Report

by **Ron Scott**
Land Protection Specialist

At the Commission's quarterly meeting on Dec. 2, 2003, several new additions to the state nature preserves system were formally dedicated. These include a 68-acre addition to Bad Branch State Nature Preserve in Letcher County, a 194-acre addition to Natural Bridge State Park State Nature Preserve in Powell County, a 5.5-acre addition to Tom Dorman State Nature Preserve in Garrard County, and a critically-located one acre addition to Terrapin Creek State Nature Preserve in Graves County. The Commission also approved three new preserves designs – Lee's Branch Swamp (Woodford County), Stone Mountain (Harlan County) and an expansion of the Natural Bridge State Park preserve design (Powell County). Commission-approved preserve designs authorize staff to work with landowners within the designated area to acquire or otherwise protect these ecologically significant sites.

We are also continuing to work through the acquisition process on a number of parcels of land across the state whose owners have already agreed to convey their property to the Commission. In the next few months, we hope to secure additional acreage at several existing preserves, including: Frances J. Palk SNP – Pulaski County; Hi Lewis Pine Barrens SNP – Harlan County; Bad Branch SNP – Letcher County; Blanton Forest SNP – Harlan County; and Jim Scudder SNP – Hardin County. The Commission also expects to establish two new preserves in Lincoln and Hardin counties.

In addition, the Commission has taken a leadership role within the state regarding preservation of natural areas and open space. Based on the enthusiastic response at a meeting this past August of private organizations and government agencies involved with private land preservation, the Commission will host a follow-up meeting in early 2004. At this meeting, which will also involve representatives from the historic preservation community, we hope to refine some of the topics discussed previously and formulate concrete plans for enhancing the land preservation movement within Kentucky.

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Earth Day and KSNPC

Please visit our exhibit at the Louisville Zoo on April 24 from 10 a.m. to 5 p.m. for the Touchstone Energy -Louisville Zoo Earth Day Celebration 2004. We are pleased to participate again in this annual event conducted to raise awareness of environmental issues and to provide the public with an economical venue for environmental education. There is no charge for children 11 or younger visiting the Louisville Zoo on April 24, so bring the family! For details, visit the zoo online at <http://www.louisvillezoo.org/>.

Join us for hikes at various locations throughout the state during the spring, beginning on April 3 at Blanton Forest. Details on this and other activities are on our Website at <http://www.naturepreserves.ky.gov/>

More Earth Day Info

Visit this site online for more information on Earth Day and a calendar of statewide events: www.environment.ky.gov/earthday.

How to contact the Kentucky State Nature Preserves Commission:

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