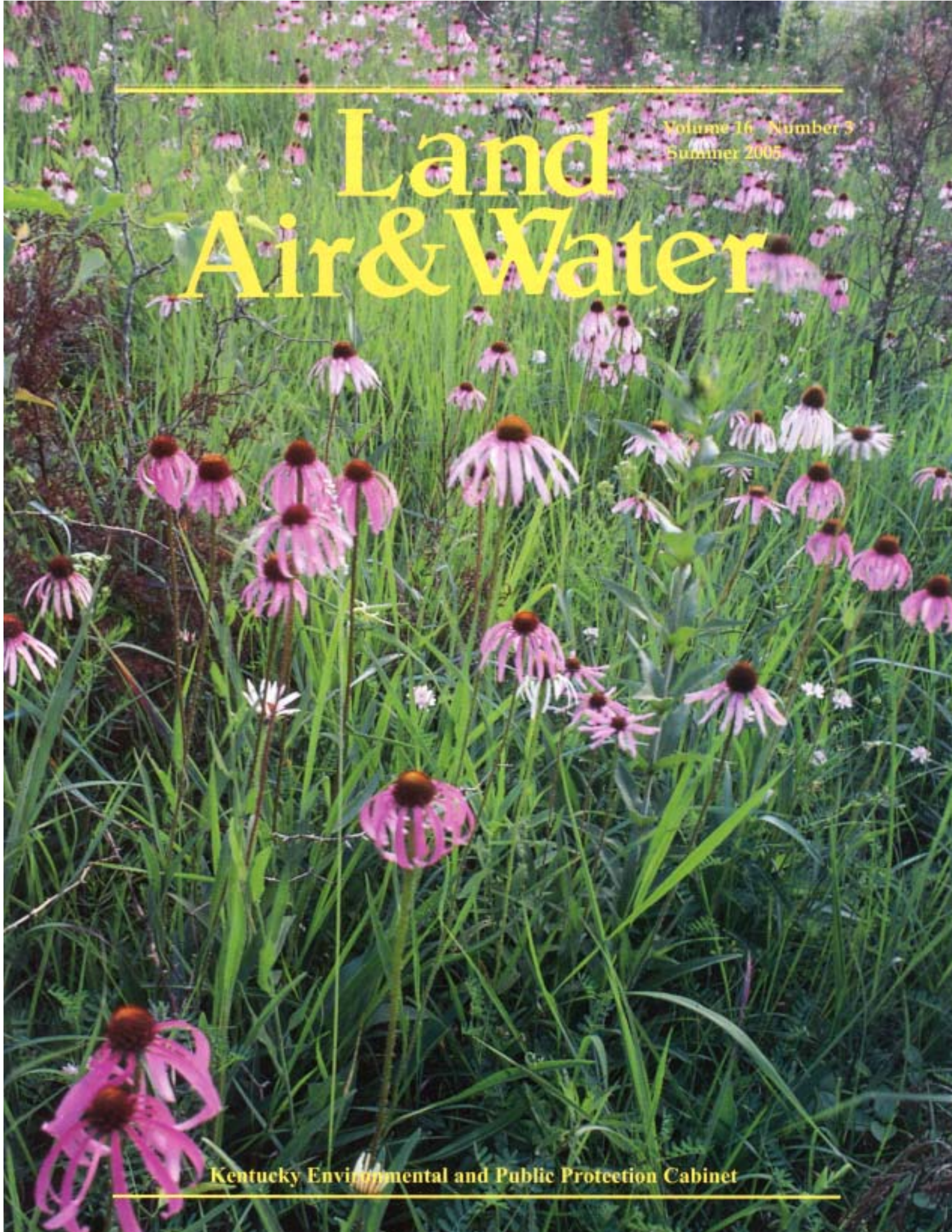
Land
Air&Water
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Kentucky Environmental and Public Protection Cabinet

Land
Air&Water

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Philip Anderson, *Commissioner*

Editor
Design & Production
Cindy Schafer

Agency Coordinators
Martin Bess, Maleva Chamberlain, Leslie Cole, Mary Jean Eddins, Gwen Holt, Leslie Isaman, Lola Lyle, Dana Norton, Elizabeth Robb, Lee Ruggles, Kate Shanks, Eva Smith-Carroll, Rose Marie Wilmoth and Chuck Wolfe

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Governor's Conference on the Environment coming soon

By Boyce Wells
Department for Environmental Protection

A healthy state—that is not only the title of the 29th Governor's Conference on the Environment, but also a goal. A state that contains a healthy environment and a healthy economy, with healthy citizens as well.

The conference, which will be held in September, will examine the full circle of our environment—a natural environment that benefits a healthy workforce that drives a vibrant economy that protects the environment.

National and local speakers will give presentations on how we can focus our efforts on having an environment that is viable for the economy and conducive to being outdoors and participating in an active lifestyle.

The primary sponsor of the conference is the Environmental and Public Protection Cabinet. Again this year, the Commerce Cabinet and the Cabinet for Economic Development will be participating as co-sponsors, and in keeping with the idea that a healthy environment produces healthy citizens, the Cabinet for Health and Family Services will also be a conference co-sponsor.

The panel sessions will include the following topics: A Healthy Community, A Healthy Environment, Healthy Citizens and A Healthy Economy. Speakers are being invited who will provide national, state and local perspectives in each of these areas. Particular emphasis is being placed on sharing opportunities that are transferable on a local or regional level. The planning committee is also researching possible tours in the area.

The 29th Governor's Conference on the Environment will be held Sept. 26-27 in Louisville at the Hyatt Regency Louisville. Visit the Governor's Conference Web site at **http://www.environment.ky.gov/govconference.htm** for additional details as they become available.

Conference registration and hotel information are also available on the Web site, or you may contact Boyce Wells at (502) 564-2150 ext. 137.

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features

on the cover

This landscape of pale purple coneflower (*Echinacea pallida*) was photographed by Thomas G. Barnes, University of Kentucky, Department of Forestry.

contents

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LEFT: ***Members of the Black Water Task Force receive a tour of Ohio Coal Company's Big Run underground mine.***

BELOW: ***Task force members and others who contributed to the black water report spent a year assessing causes and impacts of black water spills in Kentucky before putting together BMPs for the coal industry to use to help reduce the number of black water incidents in the state.*** Environmental and Public Protection Cabinet photos

Recommendations released to minimize black water spills in Kentucky

By Dana Norton
Office of Communications and Public Outreach

Last April Governor Ernie Fletcher released a report that included recommendations and best management practices (BMPs) for Kentucky's coal industry that are designed to substantially reduce the risk of black water spills.

Under the guidance of Governor Fletcher and Environmental and Public Protection Cabinet (EPPC) Secretary LaJuana S. Wilcher, the seven-member Black Water Task Force assembled the BMPs after working for a year to assess the causes and impacts of black water spills in Kentucky.

The task force, which included representatives of environmental organizations, state agencies and Kentucky's coal industry, reached consensus on what actions coal companies can take to minimize the occurrence and severity of spills in the Commonwealth.

"The leaders of environmental and coal organizations, universities and state agencies worked cooperatively in developing these recommendations, which could minimize the impacts caused by black water spills," Governor Fletcher stated.

Coal being prepared for commercial use typically is washed with large amounts of water. Black water spills occur when this water, or slurry, is discharged from coal impoundments, sediment ponds, roads or during coal mining-related activities. Spills such as the devastating 2000 Martin County slurry spill are caused when slurry or other coal waste seeps into and leaks from underground mine works located below a slurry pond or impoundment.

Spills adversely impact water quality, harm aquatic life and damage property. Thirteen spills occurred during December 2003 and January 2004. These spills fouled miles of Kentucky's waterways and prompted Governor Fletcher and Secretary Wilcher to launch a task force to analyze the problem.

Task force members toured coal preparation plants and slurry impoundments in western and eastern Kentucky. They gathered and reviewed data on historic trends of water quality violations, effects of spills on stream ecology and potential toxicity of black water from heavy metals and organic compounds.

The research led the task force to compile a series of BMPs for the coal industry that are designed to be effective, yet easy to implement, low-cost ways to reduce spills and the impact of spills on the environment. Findings on black water's impact on aquatic life and human health are also in the report.

"The goal of the Black Water Task Force was the significant reduction or elimination of black water spills in Kentucky," said Bill K. Caylor, president of the Kentucky Coal Association and a task force member.

"Through dialogue, education and a spirit of compromise, the task force members developed progressive recommendations to achieve this goal. Secretary Wilcher is to be commended for her aggressive resolve to address this problem," said Caylor.

Judy Petersen, director of the Kentucky Waterways Alliance was also on the task force. "I believe that through the recommendations, we will work to accomplish our goal of reducing black

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What is “e-scrap” and why is it a concern?

By Eva Smith-Carroll
Division of Waste Management

E-scrap is electronic scrap—“end-of-life” telephones and cell phones, TVs, computers and associated equipment, audio/stereo gear, VCRs, DVDs and video game consoles.

It is a concern because these electronic appliances contain toxics that can be harmful unless properly handled.

Then there’s the sheer volume. Electronics entering the waste stream each year are measured in the millions. Currently e-scrap is about two percent of the solid waste stream—that’s 100,000 tons of e-scrap per year in Kentucky alone—and is the fastest growing waste category.

Up to 130 million cell phones are “retired” each year, according to the U.S. Environmental Protection Agency (EPA). A study by Carnegie Mellon University’s Green Design Initiative estimates that the equivalent of 220 million computers will be e-scrap in 2005. The good news is that 150 million of that total will be recycled, the study predicts.

Individuals may legally dispose of electronic equipment in their garbage, provided that local landfills will accept it. Citizens should contact the solid waste coordinator in their county to be sure. Businesses and institutions must handle their electronic devices and components in a manner consistent with state and federal laws.

ABOVE and BELOW: ***Electronics collected during a recycling drive.*** Photos courtesy of Louisville Metro’s Cyber Cycle program

“e” is for electronic

First came “electronic mail” in 1977, followed by e-mail in 1982. The rest is history. In 1998, the American Dialect Society named “e” the Word of the Year “because hyphenated prefix e- loomed so large in American discourse.”

In any event, the Kentucky Division of Waste Management strongly encourages responsible management of electronic equipment. Some suggestions:

- Recycle through e-recycling drives or directly to an e-scrap recycler.
- Resell or donate usable equipment. A tip from Techsoup.org (The Technology Place for Nonprofits): it works out best for everybody if you donate a computer to a nonprofit or school-based refurbisher rather than directly to a school or charity. If your computer is more than five years old, send it to a commercial recycler.

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According to the U.S. EPA, here is what can be found in e-scrap:

Cadmium—found in chip resistors, infrared detectors and semiconductors.

Lead—found in glass panels in computer monitors and in lead soldering of printed circuit boards.

Mercury—found in thermostats, position sensors, relays and switches (e.g., on printed circuit boards), discharge lamps and batteries. It is also used in medical equipment, data transmission, telecommunications and mobile phones.

Hexavalent Chromium or Chromium VI—can be used to protect against corrosion of untreated and galvanized steel plates.

Brominated Flame Retardants—found on printed circuit boards, components such as plastic covers and cables as well as plastic covers of televisions.

Brownfield strategy promotes cleanup of abandoned properties

By Herb Petitjean
Division of Compliance Assistance

To encourage private companies to clean up and reuse brownfields, the Kentucky General Assembly recently enacted legislation that addresses issues with cleanup costs and potential liability that have discouraged developers in the past from reclaiming brownfields.

Governor Ernie Fletcher signs the Tax Reform Act, which included several provisions to promote redevelopment of brownfields. Creative Services photo

Brownfields are properties that are abandoned or underutilized due to real or perceived contamination.

By encouraging private companies to invest in brownfields, Kentucky will improve human health, the environment, economic development and property values.

The legislation closely aligns the state environmental liability provisions with federal law. One provision provides liability protection for Bona Fide Prospective Purchasers (BFPPs). To qualify, the purchaser must:

- Have no affiliation with the responsible party.
- Purchase the property with full awareness of contamination likely to be encountered.
- Commit to acting in a responsible manner.

Qualifying as a BFPP gives a purchaser access to new tax incentives. To be eligible, a contaminated property must not have a responsible party who is financially able to perform the cleanup. The BFPP must also enter the Kentucky Voluntary Environmental Remediation Program.

Upon completing the remediation program, the BFPP receives a "covenant not to sue" from the state. The purchaser is then eligible for an income tax credit up to $150,000 for the cost of environmental cleanup. Additionally, the property covered by a covenant not to sue will not be subject to any local property tax for a period of three years. State property tax will be assessed at a discounted rate for the same three-year period.

The final piece of the new Kentucky brownfield strategy is adoption of the Uniform Environmental Covenant Act (UECA). Many times it is not practical to completely remove contamination from a property. In such cases, a cap may be placed over the waste, the property may be limited to industrial uses or other measures may be taken.

In the past, deed restrictions were placed on the property to ensure that cap or usage restrictions were maintained. However, real estate laws were not designed to address contaminated properties, and there were legal difficulties with long-term enforcement of these management plans. The UECA provides a stronger legal tool to enforce these restrictions. It will make regulators, property owners, local governments, environmental groups, developers, lenders and title companies more comfortable relying on barriers and land use controls as part of brownfield cleanup. The act also resolves questions raised by instances of foreclosure, bankruptcy, eminent domain and adverse possession.

For additional information about the Kentucky Brownfield Program, contact Herb Petitjean, Division of Compliance Assistance at (800) 926-8111 or e-mail herb.petitjean@ky.gov

Provisions of the legislation

- Encourage environmental cleanups
- Reduce the risks to human health
- Promote recycling of brownfields
- Encourage preservation of fields and forests
- Increase the tax base through higher property values
- Add new jobs

Naval Ordnance Station Louisville project nears successful completion

By William Holskey
Division of Waste Management

The end of an era is quickly approaching for the former Naval Ordnance Station Louisville (NOSL).

After nine years of concentrated effort by state, federal and city agencies, the Navy and environmental contractors have given the World War II-era facility a new name and a new lease on life. This transformation took place under the federal Base Realignment and Closure Act (BRAC).

"The commitment of the Navy, the U.S. Environmental Protection Agency and the Environmental and Public Protection Cabinet (EPPC) to a partnering process was central to the timely characterization and cleanup of this site," said Tony Hatton, assistant director of the Division of Waste Management, who worked on the project.

The partnership has been such a success that the former NOSL ranks nationally as one of the fastest BRAC sites to complete remediation and final transfer.

NOSL, located a half mile west of the Louisville International Airport, began operations in late 1941 as a government-owned, contractor-operated facility that mass-produced, machined and assembled weapons systems for the Navy. It has essentially been in operation since that time.

In 1995, NOSL was slated for closure as a government facility under BRAC but was selected for reuse under a privatization program. The Louisville/Jefferson County Redevelopment Authority proposed a plan to the Navy to continue operations at the facility. The Navy accepted that plan, and the facility was privatized in late 1996 under a lease from the Navy to the authority.

The site was renamed Technology Park of Greater Louisville (view the facility online at **http://www.technologypark.net**) and continues to support the Navy contractors. The Navy transferred the facility to the combined Louisville/Jefferson County Government in early 2004.

The Navy still maintains cleanup obligations under the hazardous waste permit for the facility. The permit was originally issued in 1986 by the Division of Waste Management and renewed in 1996. The permit specifies requirements for managing hazardous waste and conducting cleanup at the facility. A pending modification to the permit document reflects the environmental work that has been completed and the cleanup activities that will be accomplished in the future.

In 1997, the Navy transferred oversight of the facility to its Southern Division, headquartered in South Carolina. Since that time, the Navy has worked closely with all stakeholders to move forward at an accelerated pace.

Several EPPC agencies were involved in the project. The Division of Waste Management's Hazardous Waste Branch, along with the staff of the former University of Kentucky Federal Facilities Oversight Unit, played a major role in the timely investigation and remediation of the site. The Division of Environmental Services' Risk Assessment Branch and the cabinet's Office of Legal Services were instrumental in getting the site to this point of completion in a relatively short period time. Other partners were the EPA, Louisville/Jefferson County Redevelopment Authority and the local Restoration Advisory Board.

The Navy conducted many investigations and cleanup activities at the site since 1995, including sampling and analyzing soils at more than 1,300 locations, sampling and analyzing groundwater from 110 groundwater monitoring wells, performing five major and 120 minor soil removal actions, removing more than 15,000 tons of contaminated soils, removing or closing all 49 underground storage tanks and cleaning all sumps, pits and drainage ditches. To date, the Navy has spent about $30 million on investigations and remediation at the site.

Aerial view of Technology Park of Greater Louisville, former Naval Ordnance Station Louisville. Photo provided by the Louisville/Jefferson County Redevelopment Authority

A watershed development

By Chuck Wolfe
Office of Communications and Public Outreach

Kentucky, Tennessee sign environmental cooperation agreement

Kentucky and Tennessee, known more for the rivalries nurtured over decades of competition for tourism, economic development and athletic supremacy, are engaging in some notable cooperation for the sake of their shared environment.

Governor Ernie Fletcher of Kentucky and Governor Phil Bredesen of Tennessee in April signed an agreement—a statement of principles—establishing a pilot project for interstate environmental cooperation.

Each state's top environmental officer—LaJuana S. Wilcher, secretary of the Kentucky Environmental and Public Protection Cabinet, and Betsy L. Child, outgoing commissioner of the Tennessee Department of Environment and Conservation—also signed the agreement.

The initial focus of the project is on management and protection of the two states' common watersheds—geographic regions that drain into streams, river systems or other bodies of water. Among the partnership's many advantages is that both states, sharing information, will be better able to identify water quality problems along their mutual border. The concept of a partnership also recognizes that a waterway is a system, and problems do not occur in isolation.

"We are connected by a web of streams and rivers," Wilcher said. "Watersheds are defined by ridges. They don't follow political boundaries. They don't stop at the state line. Anything that happens upstream will have an effect on water quality downstream."

The two-state partnership will deal initially with four river basin areas: the Red River basin of the Cumberland River watershed; Mud Creek and Elk Fork basins of the Upper Cumberland watershed; Big South Fork River basin of the Upper Cumberland; and the East Fork of the Clarks River watershed.

Margo Farnsworth, executive director of the Cumberland River Compact, a nonprofit educational organization based in Nashville, Tenn., said Kentucky and Tennessee were "visionary" in striking an agreement without waiting for a crisis. She said it should give both states a stronger argument for federal water funding, which is getting harder to come by.

"Resources are shrinking, so collaboration is the way we have to do business," Farnsworth said. "It's collaborate or die."

Farnsworth and other proponents hope the partnership also will bring some consistency to water monitoring and help make the public more knowledgeable about river issues.

Someone comparing water quality reports from each state—but who didn't know that Kentucky and Tennessee used

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WATERSHEDS CONNECT US

Ten million people live within watersheds in Kentucky and Tennessee. No tedious math is required here: It's simply the combined populations of the two states because everyone – no matter where – lives in a watershed.

All of Kentucky and Tennessee lies within the Mississippi River watershed, one of the largest in the world. Watersheds of three other large rivers – the Cumberland, Tennessee and Green – are shared by the two states.

At least 68 smaller watersheds also overlap the Kentucky-Tennessee boundary, collectively covering 1,612 square miles – about 24 square miles each, on average, according to the Kentucky Division of Water.

On top of those are an indeterminable number of smaller watersheds with intermittent streams or drainage ways.

Small watersheds in Kentucky and Tennessee converge with progressively larger watersheds, eventually draining into the Mississippi and the Gulf of Mexico.

TOP: ***Debbie Hamilton, Clarksville, Tenn., and Hugh Duguid, Hopkinsville, Ky., take samples in the Lower Cumberland River Watershed.*** Photo by Ken Cooke
BACKGROUND: ***A scenic expanse of the Cumberland River.*** Photo provided by the Kentucky Department of Fish and Wildlife Resources

Kentucky spearheads initiative for drug- and alcohol-free mines

By Linda Potter and Holly McCoy
Department for Natural Resources

The Mine Substance Abuse Task Force, created to address the increasing concern about drug and alcohol abuse at mine sites, held its first meeting in March at the Hazard Community and Technical College. The task force includes representatives from Kentucky, Virginia and West Virginia, the federal government, the mining industry and labor. The multistate task force spent the day discussing what topics would be studied in depth, including ways to determine the extent of the problem and to identify regional trends.

The issue was initially addressed in December during a one-day summit, "Keeping America's Mines Drug and Alcohol Free." It was hosted by the states of Kentucky, Virginia and West Virginia and by the U.S. Mine Safety and Health Administration (MSHA).

More than 200 participants provided anecdotal and statistical information and offered general recommendations for addressing this growing concern. The task force is utilizing the recommendations of the summit as it studies the issue.

"Substance abuse has become a serious safety issue in coal mines," said Kentucky Department for Natural Resources Commissioner Susan Bush during the opening remarks. "The charge of this task force is to compile a report of recommendations on how to best address this problem for the benefit and safety of the working miner."

Paris Charles, executive director of the Kentucky Office of Mine Safety and Licensing, added, "I have learned from researching this issue that the most prevalent substance abused where I'm from in Pike County is cocaine. But in other counties it is perhaps methamphetamine or abuse of prescription painkillers." Statistics from Operation UNITE (Unlawful Narcotics Investigation, Treatment and Education) will help identify prevalent drugs abused by region.

The task force will make use of existing research and community resources. However, the sensitivity of the substance abuse issue necessitates a thorough understanding of the laws regarding an individual's right to privacy.

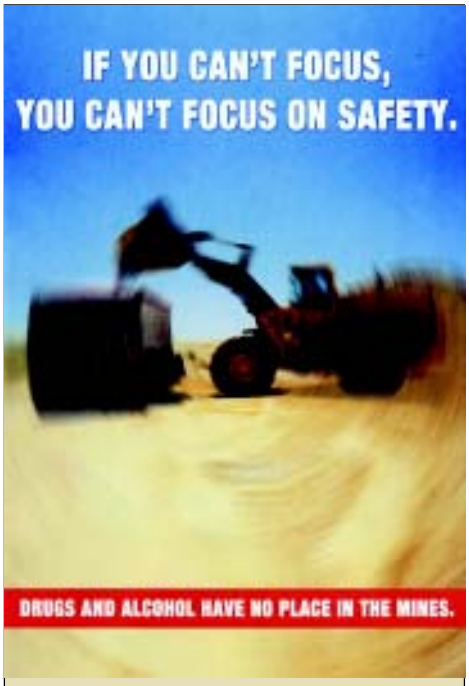
In future meetings, speakers with technical expertise in the federal health insurance law known as HIPPA – Health Insurance Portability and Accountability Act of 1996 – and the computerized drug tracking system known as KASPER – Kentucky All Schedule Prescription Electronic Reporting program – will be asked to make presentations on privacy issues and potential opportunities for sharing information.

The task force plans to use a variety of experts to fully explore:

- capabilities, restrictions and reliability of various drug and alcohol screening and testing procedures;
- drug treatment options;
- workers' compensation insurance;
- incentives (increased productivity, deceased theft, decreased absenteeism and lower worker's compensation rates) for companies who begin drug testing programs;
- a tracking mechanism for miners who change mines or cross state lines to avoid drug testing;
- the handling of contractors working at the mine (e.g., truck drivers and service representatives)

The diversity of the task force indicates that their recommendations will be the culmination of careful consideration from all the organizations represented.

The work of this task force will provide valuable information to state and federal governments as well as industry and labor representatives as the state moves forward to eliminate the problem of substance abuse in the mines.



Mine Substance Abuse Task Force members include:

Tom Asbury, Black Mountain Resources; Ronnie Brock, MSHA; Dave Blankenship, TECO Coal Co.; Commissioner Susan Bush, Kentucky Department for Natural Resources; Paris Charles, executive director, Kentucky Office of Mine Safety and Licensing; Helen Churilla, Consol Energy Corp.; Greg Damron, Cheyenne Elkhorn Coal Co.; Steve Earle, United Mine Workers of America; Carroll Green, Virginia Division of Mines; David Hay, Kentucky Employers Mutual Insurance Co.; Mike Hymes, ICG Industries Inc.; Karen Jones, Kentucky Office of Drug Control Policy; Frank Linkous, Virginia Division of Mines; Ben Spears, Kentucky Mining Board; and Doug Conaway, West Virginia Office of Miners Health, Safety and Training.

The task force plans to meet monthly for approximately six months to gather data and information.

Poster courtesy of the U.S. Mine Safety and Health Administration

Hybrid vehicles added to cabinet fleet

By Elizabeth Robb
Division for Air Quality

Thanks to the leadership of Governor Ernie Fletcher and Secretary LaJuana S. Wilcher, the Environmental and Public Protection Cabinet (EPPC) has incorporated several gas-electric hybrid vehicles into its fleet. Four Toyota Prius and two Ford Escape hybrids, which reduce fuel cost and consumption along with minimizing air pollution, were added this year to the cabinet's fleet to benefit Kentucky taxpayers.

Driving tips for cleaner air

- **Keep your vehicle well tuned**—simple maintenance will lengthen the life of your car as well as improve fuel economy and minimize emissions.
- **Get regular oil changes**—replacing the oil and oil filter regularly will also help fuel economy.
- **Inflate your tires**—check tire pressure at least once a month and maintain it at manufacturer specifications. Properly inflated tires save fuel by reducing the amount of drag your engine must overcome.
- **Keep track of your gas mileage**—a drop in your car's fuel economy can be a sign of engine trouble.
- **Follow the speed limit**—driving 65 mph instead of 75 mph will increase your fuel economy by about 10 percent.
- **Take a load off**—the heavier your car, the more gas it uses. Don't carry unnecessary weight. Every extra 100 pounds costs about a half-mile per gallon.
- **Avoid drag**—if you drive with a roof rack, aerodynamic drag increases and results in higher fuel consumption. Remove your roof rack when it is not in use.
- **Try not to idle for more than a minute**—during startup, your engine burns extra gasoline. Once under way, however, letting your engine idle for more than a minute will burn even more fuel than turning off the engine and restarting it.

Secretary Wilcher said the fleet purchases supported the philosophy of Governor Fletcher's administration. "Governor Fletcher and this cabinet are committed to saving tax dollars and protecting the environment by using this fuel-efficient technology," Wilcher said. "Governor Fletcher pledged to make state government more efficient, and the use of hybrid vehicles is just one example of that commitment in action."

These purchases have also come about due to Wilcher's ability to work across cabinet lines. During the Earth Week kickoff at the Capitol on April 18, 2005 (see *Earth Day every day* on Page 9), Wilcher thanked Finance and Administration Cabinet Secretary Robbie Rudolph and Transportation Cabinet Acting Secretary Bill Nighbert for their assistance in making it possible for the EPPC to acquire these vehicles. The cabinet began replacing large sedans with hybrids last year to save tax dollars and increase fuel efficiency.

City-highway mileage for the cabinet's Prius vehicles has averaged 47.6 miles per gallon, compared with 21.5 mpg that was typical of the larger sedans. "In-town" mileage has been 59 mpg for the Prius, compared with 16 mpg for other sedans. In addition, the federal government includes the Prius among vehicles rated best for reduced "greenhouse gas" emissions and minimal air pollution.

Hybrid technology received its name because it utilizes two sources of power—a gasoline motor and an electric motor powered by a battery—to achieve fuel efficiency. Most hybrids, including the Prius, use energy generated from braking to recharge the battery. In conventional automobiles, this energy is lost as heat. The electric motor is used to assist the engine during heavy acceleration or when going up hills. This allows for a smaller engine, which reduces fuel consumption.

The battery also takes over when the car is stopped in traffic, minimizing idling and thus reducing fuel consumption, automobile emissions and noise. The reduction of engine idling explains why fuel efficiency is better in town rather than on the highway for some hybrids. It also is especially promising for reducing auto emissions in towns and cities, which often have high pollution indexes in part from automobile idling during peak traffic flow. Engine idling is one of the most polluting parts of driving an automobile.

The demand for hybrid technology is high, with waiting lists for these cars being as short as two weeks and as long as one or more years. News reports indicate people are paying a premium for used hybrids to avoid waiting. Production is expected to increase with demand, as evidenced by Toyota's announcement that it plans to build a hybrid Camry at its plant in Georgetown, Ky. The Camry was America's top-selling car last year, and Toyota hopes to make 48,000 hybrid versions each year.

Continued on Page 15

EPPC Secretary LaJuana S. Wilcher drives one of the cabinet's new Toyota Prius hybrids that will help save taxpayer dollars and increase fuel efficiency. Photo by Creative Services

Mercury spills become a health concern

By Dana Norton
Office of Communications and Public Outreach

Mercury spills in four Kentucky schools in recent months prompted state agencies to release guidelines on how teachers and administrators can contain spills and minimize students' exposure to the poisonous, metallic element.

The Environmental and Public Protection Cabinet (EPPC), the Education Cabinet and the Cabinet for Health and Family Services (CHFS) collaborated on the guidelines and sent them to school superintendents statewide. The cases that prompted the guidelines occurred in Madison, Marshall, Kenton and LaRue counties.

"We realized we needed to get some information to our schools about how they can take some proactive measures," said Guy Delius, assistant director of the CHFS Division of Public Health Protection and Safety.

Elemental mercury, or "quicksilver," is used in glass thermometers. Despite efforts by Kentucky schools to remove mercury thermometers from science classrooms, small spills still occur.

The recent spills were unusual in that students brought mercury to school. In one incident, a student unwittingly contaminated parts of a school building after taking mercury to a science teacher for identification. In another, a student opened a jar containing mercury while on a school bus.

Mercury occurs naturally in air, water and soil. Elemental mercury, though a metal—shiny, heavy and silver-white—turns to liquid at room temperature, and like other liquids it evaporates. Mercury fumes are odorless but toxic.

"It is highly volatile. It will evaporate. It puts off fumes," said Bill Burger, manager of the EPPC's Division of Waste Management's Field Operations Branch.

Exposure to these fumes—especially long-term exposure—can cause permanent brain damage and can harm kidneys and developing fetuses, according to the U.S. Environmental Protection Agency.

Mercury is used in some thermostats, light switches and fluorescent light bulbs, navigational devices and in instruments that measure temperature and pressure. It also is used to repair dental cavities.

Cleaning up mercury can be tedious and costly. When dropped, liquid mercury breaks into beads that can roll into cracks in floors, become lodged in carpet fibers and adhere to many surfaces. Large-scale cleanup efforts can cost schools thousands of dollars.

Quinn Kelley, Tetra Tech EM Inc. (Duluth, Ga.), cleans up after a mercury spill incident at Marshall County High School in March. Photo provided by Tetra Tech EM Inc.

Small spills like the few grams of mercury found in a thermometer can be cleaned up safely by homeowners if correct actions are taken quickly. If more than a few grams are spilled, it is important to contact the EPPC's Division of Waste Management, your local poison control center or local emergency response personnel. Two pounds of mercury is roughly two tablespoons.

The following guidelines summarize how to contain and clean up a mercury spill in your home. These guidelines are by no means a complete list of what to do. More information about mercury cleanup can be found at **http://www.waste.ky.gov, http://www.epa.gov/mercury/disposal.htm** or by calling 1-800-NO-DUMPS. School officials should follow the set protocol for reporting and cleaning spills and call the Education Cabinet with any questions.

MERCURY SPILL GUIDELINES

What not to do:

- Do not touch mercury. Mercury was once freely handled in science classrooms, but exposure to mercury through skin contact can be dangerous.
- Do not vacuum the mercury. Heat from a vacuum can spread vapors.
- Do not use a broom or soak up mercury with a rag. This can break up and scatter pieces of mercury.
- Do not use household cleaning products. Products with ammonia or chlorine can combine with mercury to create a toxic gas.
- Do not pour mercury down a drain. Do not wash contaminated items in a washing machine.

To clean up a small spill:

- Remove people—especially children and pregnant women—and pets from the area and keep them from walking through the mercury.
- Turn off ventilation systems. Mercury can adhere to dust particles and spread throughout entire systems.
- Open windows and doors, and ventilate the area for 24 hours. Mercury vapors are easily spread in warm, poorly ventilated areas.
- Use liquid-proof gloves and protective eye gear. Remove all jewelry before cleanup begins. Mercury will bond with many metals.
- Locate all visible mercury beads. Use a flashlight. Beads can roll far away from a spill site.
- Use two stiff pieces of paper or a squeegee and paper to collect large beads.
- Collect small beads with an eye dropper or with the sticky side of duct tape. A small amount of shaving cream on a brush also can be used to collect small beads.
- Place all beads on a paper towel and place the towel in a Ziploc bag.
- Place the bag, any tools you used and contaminated shoes and clothing in a garbage bag.
- Wash your hands with soap and water.
- Contact your solid waste coordinator for information on safe disposal methods.

Kentuckians throughout the Commonwealth joined others from around the globe in celebrating the 35th anniversary of Earth Day in April. Spearheaded by the Environmental and Public Protection Cabinet (EPPC), a statewide Earth Day campaign reminded citizens of their personal responsibility to protect the environment and created awareness about the positive impact recycling has on the environment and the economy.

"Earth Day is about everyone," stated EPPC Secretary LaJuana S. Wilcher. "We all have an individual impact on the environment and a personal responsibility to protect it."

Below are highlights from Earth Week:

Earth Day every day

By Kate Shanks
Office of Communications and Public Outreach

Earth Day kickoff

Governor Ernie Fletcher kicked off Earth Week by signing the Earth Day proclamation and announcing many state government recycling initiatives. The governor spoke about the role of the state office paper recycling program in reducing state government's landfill costs while promoting a healthy environment. He also encouraged all Kentuckians to "show unbridled spirit and take personal responsibility for our environment by recycling more this year."

Dumpster dives

EPPC Secretary LaJuana S. Wilcher, Education Cabinet Secretary Virginia Fox and Department of Education Commissioner Gene Wilhoit visited schools to teach students about solid waste issues. Wilcher and her colleagues participated in "dumpster dives" where garbage is pulled from dumpsters and sorted to determine what could have been recycled. "You can't make something better if you don't know there's a problem, so school is the perfect place to learn about how to protect our environment for ourselves and for the generations who will follow us," said Secretary Fox.

The group visited schools in Somerset, Bowling Green and Breathitt County.

Toyota Motor Manufacturing Kentucky tour

The EPPC joined Toyota Motor Manufacturing Kentucky in promoting hybrid technology and recycling. Four Toyota Priuses were added to the state fleet to reduce fuel consumption and emissions (see *Hybrid vehicles added to cabinet fleet* on Page 7). Secretary Wilcher, Finance and Administration Cabinet Secretary Robbie Rudolph and Transportation Cabinet Acting Secretary Bill Nighbert toured the plant and commended Toyota on its recycling efforts.

"Toyota is striving to be the cleanest automaker in the world. Certainly that applies to our hybrid vehicles, like the Prius, but also to a number of environmental initiatives at our manufacturing plants," said Kevin Butt, general manager of environmental affairs for Toyota Motor Manufacturing North America.

Signode Plastic Recycling Alliance tour

Secretary Wilcher and cabinet representatives toured the Florence manufacturing facility where 35,000 tons of PET (polyethylene teraphthalate) are purchased and recycled each year to manufacture plastic strapping for packaging. The facility employs about 47 people in recycling and 70 in manufacturing, demonstrating that recycling is good for the environment and the economy.

Sisters of Charity of Nazareth ceremony

The Sisters of Charity of Nazareth, one of the largest purchasers of EnviroWatts in the state, was recognized as faithful stewards of the environment during a ceremony marking its purchase of renewable energy.

EnviroWatts are units of energy generated from methane gas found in landfills. The religious order purchased EnviroWatts for its campus in Nazareth, near Bardstown.

TOP: ***Students at Somerset High School sort through garbage to identify items that should be recycled.*** Photo by Mark York
LEFT: ***Kevin Butt, Toyota Motor Manufacturing North America, and EPPC Secretary LaJuana S. Wilcher tour the Toyota plant in Georgetown during Earth Week.*** Creative Services photo

Ozone season is in full swing

By Elizabeth Robb and Lona Brewer
Division for Air Quality

Ozone season is here again. Ozone is a gas composed of three atoms of oxygen. It occurs both in the Earth's upper atmosphere and at ground level. Ozone can be good or bad, depending on where it is found. "Good" ozone is found in the upper atmosphere, where it forms a protective layer that shields us from the sun's ultraviolet rays. Ground-level, or "bad" ozone is formed during the hot summer months by a chemical reaction between volatile organic compounds (VOCs) and oxides of nitrogen (NOx), heat and strong sunlight. Ground-level ozone, a colorless gas, is a major component of smog. That's why Kentucky's ozone monitoring season begins on March 1 and ends Oct. 31 each year.

Ground-level ozone can present a serious air quality problem for healthy people, and can cause severe problems for people with respiratory or pulmonary illnesses, the very young and the elderly. Even at relatively low levels, ozone may cause inflammation and irritation of the respiratory tract, particularly during physical activity. The resulting symptoms can include breathing difficulty, coughing and throat irritation. Breathing ozone can affect lung function and worsen asthma attacks. Medical studies have shown that ozone damages lung tissue and complete recovery may take several days after exposure has ended.

Overall ozone levels have declined in all areas of Kentucky, allowing the entire state to be designated as meeting the old Environmental Protection Agency (EPA) 1-hour ozone standard. However, research has shown that even lower levels of ozone over longer periods can be more harmful than those "peaks" regulated under the old standard. Designations for the 8-hour ozone standard were finalized last year after undergoing many legal challenges.

The old ozone standard was a 1-hour standard set at 0.12 PPM (parts per million). A monitor could record up to three "exceedances" of this standard in three years and still remain in compliance. If a fourth exceedance was monitored, the area was considered in violation. The new standard is more stringent. It is an 8-hour standard, set at 0.08 PPM.

Hourly monitoring data values are averaged in 8-hour blocks over a 24-hour period. During ozone season, the Division for Air Quality will accumulate approximately 3,600 8-hour average values for every monitor in the network. The division calculates the three-year average based on the fourth highest 8-hour values

from each monitor each year. The area is meeting the standard if the three-year average is 0.084 PPM or less. If the average is 0.085 PPM or greater, the area is considered in violation.

Based on ozone monitoring data collected during 2001-2003, several areas of the state violated the 8-hour ozone standard—the Louisville area, which includes Jefferson, Bullitt and Oldham counties; northern Kentucky including Boone, Campbell and Kenton counties; Christian County and Boyd County (see center map). However, there were substantially fewer areas than in previous monitoring periods. In addition, based on the 2002-2004 monitoring period, the division has asked EPA to redesignate Christian County as meeting the 8-hour ozone standard.

Last year John Lyons, director of the Division for Air Quality, and members of the division's Program Planning and Administration Branch toured the state attending more than 20 meetings with local government and business leaders to advise them of the potential impacts of the more stringent 8-hour ozone standard.

"I was very pleased with the reception from the local communities," stated Lyons. "Although not happy to hear that their communities may have unhealthy air quality, everyone wanted to know what the impacts would be and what actions they could take on a local level to help improve their situation."

While the state is awaiting guidance from EPA for area plans to minimize ozone pollution, local officials can continue to encourage personal responsibility among residents to reduce emissions of VOCs and NOx.

Automobiles, trucks, buses, gasoline stations, some industries, print shops, consumer products (such as paints and cleaners), lawn and garden equipment, construction equipment and locomotives are sources of VOCs. NOx emissions are typically large industry and combustion sources, including electric utilities.

The everyday actions you take this summer should involve minimizing the use of fossil fuels and electricity.

Actions you can take to help reduce smog

- Conserve energy—at home, at work, everywhere.
- Limit engine idling.
- Follow gasoline-refueling instructions for efficient vapor recovery. Always refuel after dusk. Be careful not to spill fuel, and tighten your gas cap securely.
- Keep car, boat and other engines tuned up according to manufacturer specifications. Be sure tires are properly inflated.
- Carpool, use public transportation, bike or walk whenever possible.
- Defer use of gasoline-powered lawn and garden equipment.
- Use environmentally safe paints and cleaning products. Some products that you use at your home or office are made with smog-forming chemicals that can evaporate. Follow manufacturer recommendations for use, and properly seal cleaners, paints and other chemicals to prevent evaporation.

Recommendations released to minimize black water spills in Kentucky

Continued from Page 1

Task Force members:
- EPPC Secretary LaJuana S. Wilcher
- Don Bowles, Charolais Coal
- Bill Caylor, Kentucky Coal Association
- Tom FitzGerald, Kentucky Resources Council
- Dr. Lindell Ormsbee, Kentucky Water Resources Research Institute; Environmental Quality Commission
- Judy Petersen, Kentucky Waterways Alliance
- Bruce Short, Argus Energy

Task Force advisors:
- David Lamb, Associated Engineers Inc.
- Dan Geiger, Lexington Coal Co. LLC
- Susan Bush, Department for Natural Resources
- Lloyd Cress, Department for Environmental Protection

Contributing writers:
- David Morgan, Division of Water
- Larry Taylor, Department for Environmental Protection
- Aaron Keatley, Division of Compliance Assistance
- Tom VanArsdall, Division of Water
- Allen Luttrell, Department for Natural Resources

water incidents in the state," said Petersen. "I am so pleased that the task force members could reach a consensus on the recommendations and best management practices in the report."

Coal companies in Kentucky are required to operate under a BMP plan written by the individual company. These plans are produced during inspections. However, there is no legislative requirement for coal operators to incorporate the BMPs included in the Black Water Task Force report into their existing BMP plans.

The report includes the following recommendations:

- Buried slurry pipelines shall be clearly marked on the surface with warning signs.
- Pipelines shall be inspected for wear annually using ultrasonic methods.
- Once per month, the entire pipeline or pipeline route where the pipe is buried shall be visually inspected for leaks, ground movement, pipe gouges or other distress.
- The maintenance of sediment ponds shall be supervised by company management to prevent spills.
- Clean out operations for sediment ponds should not be conducted during significant rainfall events.
- Alternatives to traditional coal waste disposal methods should be considered before or at the time of permitting. Underground injection of coal slurry and dry coal processing technology are two potential alternatives.
- In locating or expanding a coal waste impoundment, the possibility of impoundment pool failure into underground mine works should be thoroughly assessed.
- Through careful analysis, mine operators shall, on their coal waste disposal permits, clearly identify the type and location of underground workings.

A copy of the report can be found at **http://www.environment.ky.gov/homepage_repository/blackwaterreport.htm**

Often, private citizens bring black water spills to the EPPC's attention. If you suspect a black water spill has occurred near you, call the Spill Reporting Hot Line at (800) 928-2380. The hot line is open 24 hours a day, seven days a week.

What is "e-scrap"?

Continued from Page 2

- Avoid unnecessary purchases:
  - √ Don't buy electronic "gadgets."
  - √ Repair instead of replace.
  - √ Consider leasing equipment.
- Buy "green:"
  - √ Buy electronics made with recycled materials and fewer toxic constituents.
  - √ Purchase durable goods with high reliability ratings and low repair costs.
  - √ Buy products designed for easy upgrades.
  - √ Participate in dealer/manufacturer "take back" programs.
  - √ Know your labels. Look for the ENERGY STAR logo and for certification (such as Swedish TCO or Blue Angel) that indicates the product is environmentally preferable.

For more information, including a list of recyclers, go to the Kentucky Recycles Web page at **www.waste.ky.gov** or call the Division of Waste Management at (502) 564-6716.

E-scrap workshops:

The Division of Waste Management's Kentucky Recycling and Marketing Assistance program is offering four e-scrap workshops on recycling and managing electronics.

Oct. 26—Lake Barkley State Resort Park (SRP)
Nov. 9—Barren River SRP
Feb. 22, 2006—General Butler SRP
March 22, 2006—Natural Bridge SRP

The sessions are open to individuals, school systems, local governments, hospitals and other high-volume generators of e-scrap. The workshops are free, but registration is required.

For more information or to register, call Tom Heil or Dara Carlisle at (502) 564-6716 or e-mail Thomas.Heil@ky.gov or Dara.Carlisle@ky.gov.

Certification programs ensure qualified and skilled operators

By Rose Marie Wilmoth
Division of Compliance Assistance

Behind every drink of water and every toilet flush there is an intensive system to certify the people who operate drinking water and wastewater treatment plants across the state. These operators must undergo a certification program, and these programs are overseen by the Environmental and Public Protection Cabinet's Division of Compliance Assistance.

It involves two advisory boards, a group of professional trainers and the operators themselves. Both boards represent the regulated community and advise the certification staff. They hold meetings to discuss program issues, along with monthly meetings in which approval of training, approval of candidates for testing and a review of exam questions takes place. Administrative people are also included to certify the level of skill each participant has achieved. Currently there are 4,500 active wastewater and drinking water licenses, requiring renewal every two years.

To operate a wastewater treatment plant, four levels of training are required based on the design capacity of the system. Drinking water system operators are trained based on the type of filtration and design capacity. All operators must be thoroughly instructed before licenses are approved.

The operator training schedule for fiscal year 2006 was released and can be viewed on the Division of Compliance Assistance Web site at **http://www.dca.ky.gov/certprogram/trainingtestingschedule/** or additional information may be obtained by calling 800-926-8111 or (502) 564-0323.

Workshop promotes high-performance schools

By Lola Lyle
Office of Energy Policy

A recent workshop taught school administrators, engineers and architects how to build better, healthier and more energy-efficient buildings. High-performance schools are not only energy efficient but healthier and more comfortable. Workshop participants learned that there is a direct link between high-performance schools and improved academic performance.

Workshop presenters included Robert Kobert, president of Sustainaissance International Inc., an architectural firm specializing in sustainable design and development; Jason Kilwinski, a leading environmentally responsible design consultant; and William Franzen, executive director of operations for a school district that saves more than $300,000 yearly from energy projects.

The speakers discussed how high-performance facilities can improve student health and productivity, attract quality teachers and significantly reduce energy use and operating costs. They also explained sustainability through their own experiences and presented high-performance concepts that can improve the environment in school buildings.

The workshop was sponsored by the Office of Energy Policy and supported the goals outlined in Governor Ernie Fletcher's Comprehensive Energy Strategy. The strategy, which was released in February 2005, encourages schools to promote and give preference to energy-efficient products and practices, as well as to use high-performance and energy-efficient design for new construction.

For information about high-performance schools workshops, contact Greg Guess at gregory.guess@ky.gov, by phone (800) 282-0868 or visit **www.energy.ky.gov.**

A watershed development

Continued from Page 5

different parameters in monitoring – might be understandably confused, she said. The reports could indicate a shared river "is clean right up to the state line, and then it's polluted," she said.

Governor Fletcher said the partnership "is an example of how we can reach across our borders to work to improve the environment for the benefit of the citizens of both of our states."

Governor Bredesen noted that his 2005 State of the State Address to the Tennessee Legislature included a call for "an increased level of collaboration with other organizations to preserve special places in Tennessee for future generations." The pilot project, Bredesen said, is one such initiative.

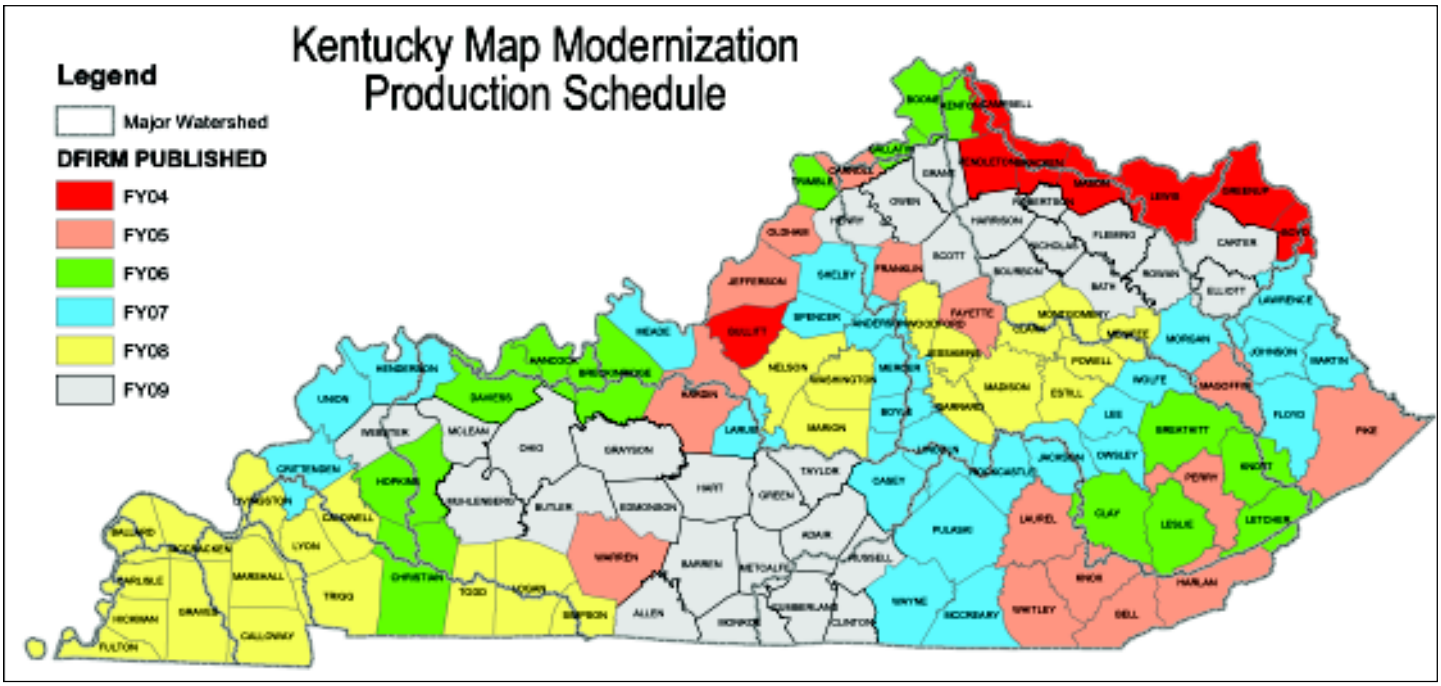
The Cumberland River flows for 697 miles from Letcher County, its extreme headwaters, to Livingston County, near Smithland, where it empties into the Ohio. The main stem crosses into Tennessee near Tompkinsville, then back into Kentucky in the form of Lake Barkley in western Kentucky. Along the way, it drains 18,000 square miles in Kentucky and Tennessee—an area that is home to nearly 2 million people.

The Cumberland is unique in Kentucky because it flows south, then changes course and flows north. Stretches of the river, including part of its Big South Fork, have been designated by the federal government as wild river areas.

Clarks River, a 62-mile-long tributary of the Tennessee River, cuts through the Jackson Purchase area of western Kentucky. East Fork, an object of the new partnership, flows north through Calloway and Marshall counties. It merges with the West Fork in McCracken County and flows into the Tennessee.

For additional information, visit the Kentucky Environmental and Public Protection Cabinet Web site at **www.environment.ky.gov**; the Tennessee Department of Environment and Conservation Web site **www.tdec.gov**; and the Cumberland River Compact Web site at **www.cumberlandrivercompact.org**

Flood maps are being modernized



The Kentucky map modernization process will continue through fiscal year 2008. Map provided by the Division of Water

By Maleva Chamberlain
Division of Water

Kentucky's floodplain maps are about to become, like Millie, "thoroughly modern."

Floodplain maps, published by the Federal Emergency Management Agency (FEMA), are essential parts of the information FEMA produces to identify flood-prone areas. Three-fourths of FEMA's flood maps are more than 10 years old, and some exceed 20 years. Kentucky's maps average 15 years.

Each state is prioritizing communities to be mapped. Kentucky is approaching this task on a watershed basis, beginning at the top of a watershed and working toward the lower reaches, thus facilitating hydrologic and hydraulic modeling of the watershed. Kentucky's goal is also to integrate the products of map modernization into existing state capabilities such as GIS, existing terrain models and aerial photography.

Natural and man-made changes in watersheds alter the level of flood risk. Kentucky has 89,431 miles of rivers and streams, which have overflowed their banks on numerous occasions causing millions of dollars in losses from flood damage almost every year.

Updating maps can help reduce damage from flooding by identifying areas for protection from development.

Homeowners must buy separate flood insurance policies because regular homeowner policies do not include flood protection. The community in which the property is located must belong to the National Flood Insurance Program (NFIP) before flood insurance is available. FEMA oversees the NFIP, which uses floodplain maps to administer the program.

The Division of Water is partnering with federal, state, regional and local agencies through a program developed by FEMA called Cooperating Technical Partners (CTPs) to help carry out the map modernization initiative.

The CTP program helps to increase local involvement and ownership of the mapping effort, providing the opportunity to create flood maps that are especially suited to a particular community. Thus, for specific conditions in a community, it will be possible to devise unique approaches to flood hazard identification.

In the creation of a CTP, the partnering agency executes a partnership agreement with FEMA that emphasizes the NFIP's three general components: flood insurance, floodplain management and floodplain mapping.

Each CTP develops a mapping activity statement that specifies the scope and schedule for the parts of FEMA's mapping process the community will perform. These partnerships make it possible to pool resources and extend funds. There are presently five CTPs in Kentucky, including the Division of Water at the state level.

Mapping activities are scheduled to continue from federal fiscal year 2004 to 2008. Generally, the Digital Flood Insurance Rate Maps are published approximately two years after mapping activities begin.

To help the Department for Environmental Protection meet its mission of protecting public health and the environment, groundwater hydrologists, geologists and other personnel with the Division of Water's Groundwater Branch recently completed nonpoint source pollution assessment studies of groundwater in two areas of the state.

Groundwater Branch completes spring, well studies

By Jim Webb
Division of Water

The first study, led by Joe Ray, involved monitoring and mapping the spring basins for 12 karst springs in the Mississippian Plateau (Pennyroyal) of western Kentucky. Karst terrain, which extends over more than half of the state, is well known to Kentuckians who are familiar with its sinkholes, sinking streams, abundant springs and caverns, most notably Mammoth Cave. The caverns generally contain cave streams that feed surface springs.

When groundwater discharges to springs, especially large karst springs, the quality and quantity of the spring water has a direct impact on the water quality and flow of the receiving stream. Therefore, this study had three purposes—to determine the volume of water contributed by the springs in base-flow conditions (unit base flow); to map the groundwater basins by hydrological mapping techniques, including dye tracing; and to assess nonpoint source pollution impacts by monitoring the water quality of these springs.

Twelve karst spring basins were mapped by measuring unit base flow, which is determined by dividing a spring's base-flow discharge by its basin area. Unit base flow is useful because the approximate square mileage of a basin can be calculated by multiplying the unit base flow by a reference value for that region. Dye-trace studies were conducted by injecting nontoxic, fluorescent dyes into sinkholes and mapping where the dyes

emerged at springs. This information is used to determine the drainage area contributing to the spring. It is especially useful when emergency personnel respond to spills in karst areas.

Water quality samples were collected at the 12 springs for two years. Samples were analyzed for a wide variety of parameters, including herbicides and nutrients. The spring basins were ranked according to the nonpoint source pollution impacts on spring water quality, and land use in the basin was also summarized. Statistical analysis of water quality versus land use in this basin helped to determine the relative susceptibility of karst springs to various nonpoint source pollutants by determining the percentages of various land uses in the karst basin. Those basins most impacted by nonpoint source pollutants were prioritized for focusing future resources, such as technical assistance, education outreach and best management practices.

Karst basin boundaries mapped for this project will be included in updated versions of the karst groundwater basin maps published by the Kentucky Geological Survey (KGS). Water quality data are forwarded to the Groundwater Data Repository maintained by the KGS. These maps and data are available online at **www.uky.edu/KGS/**

The second study, led by Phil O'Dell, assessed private water wells in an area of Letcher County not scheduled for future expansion of water lines. In this area, citizens rely on groundwater, primarily from private wells, to supply their domestic needs. Groundwater in this area is at risk from nonpoint source pollution, primarily from substandard domestic waste disposal.

Eighty-seven private water supplies were inspected and sampled for nonpoint source water quality parameters, including nitrates and bacteria. Other naturally occurring constituents that affect wells, such as iron, were also investigated. Well

Continued on Page 15

TOP: ***Sampling at Burton's Hole Spring, Breckinridge County.***
CENTER: ***Improper storage of chemicals and gasoline near a domestic water well in Letcher County.*** Division of Water photos

Kentucky Watershed Roundtable set for November

By Maleva Chamberlain
Division of Water

For up-to-date statewide and regional watershed information and an excellent networking opportunity, be sure to attend the 2005 Kentucky Watershed Roundtable. It's set for Nov. 2-4 at the Holiday Inn University Plaza in Bowling Green.

This year the Kentucky Watershed Roundtable will be jointly hosted by Southeast Watershed Forum. This will be the eighth annual Southeast Watershed Roundtable and the first held in Kentucky. The Southeast Watershed Forum includes nine southeastern states, and participants will have a chance to hear speakers and meet fellow participants from across the Southeast.

The roundtable is the perfect venue to facilitate a dialogue among many stakeholder groups. Ultimately this type of event builds trust and forges partnerships that enhance watershed initiatives. It is an excellent opportunity for citizens and citizen groups, federal, state and local government agencies and officials, business and industry representatives to sit down together and discuss problems and potential solutions to watershed issues.

More than 200 participants from across Kentucky attended last year's roundtable. Evaluations in each of the past two years have pointed to the need for the event to be held annually. One roundtable participant stated, "I attained a better understanding of what is happening throughout the state. I gained knowledge of the important issues in different watersheds and how those issues may be addressed."

Other participants commented on the networking opportunities, stating, "The roundtable program provides exposure to other agencies, who are in charge of certain programs at local and state levels." And, "The Watershed Roundtable allows me to network with stakeholders in my area of concern. This is very valuable for future issue resolution."

Look for more information in the fall issue of *Land, Air & Water* or on Kentucky Waterways Alliance's Web site at **www.KWAlliance.org**. All 2003 and 2004 roundtable attendees will receive 2005 conference information.

The 2004 Watershed Roundtable final report and the Call for Abstracts for the 2005 Roundtable are also available on the Web site.

Groundwater Branch completes spring, well studies

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owners were counseled on several pertinent issues, including nonpoint source pollution causes, effects and remediation; protecting their private supply through the use of best management practices, such as not storing household chemicals, oil and gasoline near the well; proper well maintenance and disinfection; and appropriate water treatment for their source, if necessary.

Although no pervasive nonpoint source pollution of groundwater was found in this study, several wells and water quality treatment systems were upgraded in response to advice from Division of Water personnel. The citizens who voluntarily chose to participate appreciated the information and assistance that was tailored to their individual needs.

These studies were funded by Section 319 (h) of the Clean Water Act. Final reports for these projects will be available online at **www.water.ky.gov.**

For information, contact Joe.Ray @ky.gov or Phillip.ODell@ky.gov.

Recycling in Kentucky just got a little easier

The Division of Waste Management has a new *Kentucky Recycles* Web page on its division's Web site at **www.waste.ky.gov**

The information is divided into three categories:

Where, What and How to Recycle—a county-by-county listing of recyclers, lists of specialized recyclers and links to other online sources like Earth 911.

Government Resources—information about division programs and a list of county solid waste coordinators in Kentucky.

Educational Resources—links to information and fun stuff like using recycled materials to create art.

Hybrid vehicles added to cabinet fleet

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Two more Priuses are slated to be added this summer to the Division for Air Quality fleet. Director John Lyons stated, "The Division for Air Quality has been trying for about three years to purchase hybrid technology because of its potential to reduce air pollution through increasing fuel efficiency and minimizing idling. Thanks to the addition of hybrids to the list vehicles available for purchase by agencies like ours, we have finally been able to procure this technology. This will allow us to lead the state by example in ways that the public can follow to reduce air pollution statewide."

In addition to providing transportation for agency staff, the Division for Air Quality will use the hybrids as a teaching tool for schools and the general public, taking them to public and educational events to give people the opportunity to see – and hear – how they work. If you would like to have a hybrid come to your school or event, call the Clean Air for Kentucky hotline at (800) 928-0047.

Extensive erosion on Cromer Ridge is due to illegal off-road vehicle use. Division of Water photo

Grants help improve state's water quality

By Rosetta Fackler
Division of Water

When Georgetown city engineer Brad Frazier looks out over the landscape, he sees the impervious surfaces of the city's parking lots, streets, sidewalks and rooftops that cause stormwater to carry pollutants to streams. Hard surfaces also raise temperatures, increase the potential for flooding and prevent rainwater from recharging groundwater.

What Frazier envisions instead is pavement that is porous and capable of allowing water to filter through to the ground. He sees trained design engineers, including architects, civil engineers and landscape architects, using low-impact development strategies to slow down, treat, filter and slowly release stormwater. These strategies would also allow rainwater to enter the earth and replenish groundwater.

Georgetown will be able to move toward this vision through a $456,250 grant that will help to provide education on reducing nonpoint source (NPS) pollution in urban areas. The project will include demonstrations of low-impact development strategies and will promote the Leadership in Energy Efficient Design program. These programs teach the use of best management practices (BMP) that allow infiltration, filtering, storage, evaporation and detention of excess rainfall.

The funds are from Section 319(h) of the Clean Water Act. Grants are administered by the U.S. Environmental Protection Agency and, in Kentucky, by the Division of Water. The grants are intended to help correct or prevent nonpoint source pollution.

Jon Walker of the U.S. Forest Service sees a landscape with a different problem. Off-road vehicle use has degraded 8,000 acres of the Daniel Boone National Forest and adjacent private land. Approximately 1,600 acres have been heavily impacted, and stormwater that runs off the area carries heavy loads of sediment.

The Cromer Ridge Watershed Restoration Project will be funded by $972,000 in 319(h) funds. The project will revegetate the area to help protect the Rockcastle River, a federal wild and scenic river that is home to several threatened and endangered species, and the Woods Creek Reservoir, a source water protection area that provides drinking water for London. The project will also correct many illegal travelways, install water bars to redirect runoff, educate off-road vehicle users and remove large garbage dumps on the site.

Protection of an outstanding state resource water is the goal of the Buck Creek Watershed Riparian Restoration Project near Somerset. Buck Creek is home to 30 species of mussels, four of which are federally endangered, and 77 fish species. It also is visited by the endangered gray bat. However, the mussel populations are declining because of activities such as row cropping and allowing cattle access to streams, as well as gravel mining and channel modifications at stream crossings. Section 319(h) grant funds of $550,156 will be used along with Environmental Quality Incentive Program funds from the U.S. Department of Agriculture's Natural Resources Conservation Service to further work that has been started in this watershed. Agricultural BMPs will focus on buffers between the stream and cropped acreage, stream bank protection, alternative watering sources for livestock, animal waste handling and forestry practices. The Kentucky Division of Conservation, U.S. Fish and Wildlife Service Partnership for Wildlife Program and the Upper Cumberland Watershed Watch Program are partners in this effort.

These three projects are among many activities supported by NPS grants. Because nonpoint source pollution is caused by actions we take on the land, it is important for us to make wise choices in order to protect the state's water resources.

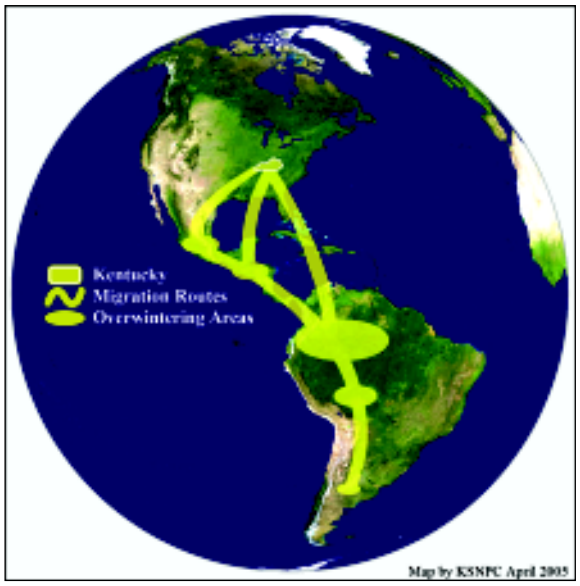
For more information about the:

- Nonpoint Source Program in Kentucky: **http://www.water.ky.gov/sw/nps/**
- NPS grants: **http://www.water.ky.gov/publicassistance/funding/nps/**
- Georgetown project: contact Brad Frazier at **cog_brad_frazier@hotmail.com.**
- Effects of illegal off-road vehicle use or to assist in improving and protecting the wild and scenic Rockcastle River: contact Jon Walker at **Jwalker05@ fs.fed.us.**
- Buck Creek project: contact Mike Strunk at **michael.strunk@ky.usda.gov.**

Across the Americas

Kentucky's ecological link to Latin America

By Greg Abernathy, Ronald Cicerello, Marc Evans and Deborah White
Kentucky State Nature Preserves Commission



Although Kentucky is separated from Latin America by a distance of nearly one thousand miles to several thousand miles, there are numerous connections between these two geographies. Since the early 1990s there has been a continual rise in the number of Latinos living and working in Kentucky, an influx that has resulted in a changing cultural landscape. These two geographies are connected by much more than people, however. The human migration between these areas is a more recent phenomenon, whereas ecological connections have existed for tens of thousands of years.

Both Kentucky and Latin America have rich and unique biodiversity (the variety of life and its interactions). Kentucky is located in one of the most ecologically diverse regions in the United States. The region has high numbers of freshwater and terrestrial species, is home to numerous endemic species (plants and animals that only occur naturally in a specific and limited area) and contains a wide variety of natural communities (habitats) from mountains to broad wetlands plains. Latin America's ecological uniqueness is unparalleled around the world. The biologically rich upland and lowland rainforests, high elevation mountain and desert ecosystems, diverse subtropical conifer forests, numerous endemic species and high plant and animal species richness make Latin America globally significant. These regions share more than individual ecological uniqueness; they are connected by species migration patterns, shared species and similar habitats in an interconnected transcontinental landscape that is critical to the survival of numerous species.

A number of plant and animal species are found in both Kentucky and Latin America. A few plants that are endangered in Kentucky are common in tropical Latin America; most of these are tropical aquatic species like Blue Mud-plantain and Burhead. These Kentucky populations are at the northern edge of their distribution and trying to adapt to cooler conditions that are less ideal than in their southern habitats. The Mississippi River serves as a northern conduit for the distribution of plants from the tropics. Water birds play a role in expanding plant species ranges; they are well known for moving plants from swamp to swamp.

Several kinds of fishes and mussels also are found both in Kentucky and Latin America. The Alligator Gar, Striped Mullet and Giant Floater are a few of the aquatic animals known from both regions. Alligator Gar live in pools and backwaters of large rivers, swamps and lakes from Costa Rica north to the Ohio River valley and Kentucky; diners in Mexico may know this species as the popular dish Rico Catán. Normally found in coastal areas nearly worldwide, the Striped Mullet swims up the Mississippi River to Kentucky during droughts. The Giant Floater is a freshwater mussel found in swamps, ponds and large rivers from the northern United States south into Mexico.

Although most of Latin America is tropical to sub-tropical, there are areas in the highlands and mountains that have a climate similar to Kentucky. In some of theses areas, specifically the highlands of Mexico and Guatemala, there are forests very similar to those of eastern Kentucky. These forests are Temperate Deciduous Mesophytic Forest, a type of forest considered to be the most biologically diverse temperate forest in the world. Although thousands of miles apart, these temperate forests share a number of plant species including trees such as White Pine, Black Cherry, Sweetgum, Flowering Dogwood and Redbud.

One of the most significant and direct connections between Kentucky and Latin America is the yearly migration of butterflies and birds between the two regions. The most significant butterfly migration is that of the Monarch. Monarch butterflies breed in North America and each year millions of them migrate over a thousand miles to overwinter primarily in one small region of southern Mexico. Bird migration between these two regions is represented by Neotropical migrants, birds that breed in North America and spend the nonbreeding season in Mexico, the Caribbean and Central and South America. Each year Neotropical migrants such as Cerulean Warblers, Indigo Buntings, Scarlet Tanagers, Baltimore Orioles and Wood Thrushes come to Kentucky to nest and breed, and then return to Latin American countries for the nonbreeding season. Millions of Neotropical migrants make the yearly journey traveling thousands of miles during the flight; some species travel as far south as the Andes. These birds typically migrate as individuals and fly during the night.

All species depend on good quality natural habitat where they live and along their migratory paths. Species habitat and migration corridors are under increasing pressure from human population growth throughout the transcontinental landscape between Kentucky and Latin America. Habitat fragmentation and degradation are occurring at unprecedented rates. Land conversion (forest clearing, wetland draining, etc.), resource extraction (logging, surface mining, etc.), land use practices (agricultural applications of fertilizers and pesticides, dams, etc.) and urbanization (urban sprawl, road building, power line corridors, etc.) have dramatically altered the landscape and imperiled

Continued on next page

LEFT: ***Migration routes between Kentucky and Latin America.*** Map by the Kentucky State Nature Preserves Commission. Satellite Data © NASA - Visible Earth 2004

countless species. Fragmented and degraded landscapes result in limited habitat for native species. As the natural landscape is degraded it begins to lack the ability to perform ecological processes, tends to increase the spread of invasive species (species that occur outside their natural range) and results in diminished ecosystem services (drinking water, clean air, medicinal extracts, etc.).

There are a number of conservation-based organizations working across the Americas to protect irreplaceable endangered plants, animals and ecosystems throughout the region. One of the largest networks is the international natural heritage network headed by NatureServe. This network includes Natural Heritage Programs and Conservation Data Centers across Canada, the United States and Latin America, all contributing data to the same conservation database. The Nature Conservancy and the World Wildlife Fund are two of the larger international not-for-profit organizations spearheading land conservation, research and coordination of resources for conservation activities across the Americas. Additionally, organizations such as Pronatura (Mexico), Defensores de la Naturaleza (Guatemala) and Pro-Naturaleza (Peru) make significant regional contributions. Although these organizations play a significant role, conservation efforts must involve local individuals, communities and organizations to conserve biological and ecological riches shared by all throughout the region.

Public awareness, understanding and support of our shared natural heritage is essential to maintaining the rich biodiversity of this interconnected transcontinental landscape. To learn more about rare species and natural communities, conservation efforts and the Natural Heritage Network, and to view additional photos and maps, visit **www.naturepreserves.ky.gov/inforesources/LAconnection.htm**

This article was published in a three part series in La Voz, a regional bilingual Spanish-English newspaper.

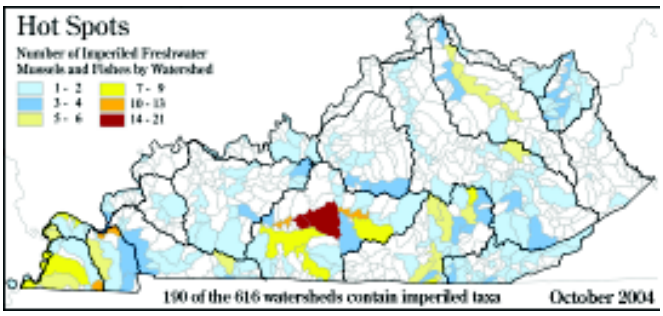
'Hot spots' and priority watersheds identified for imperiled fishes and mussels

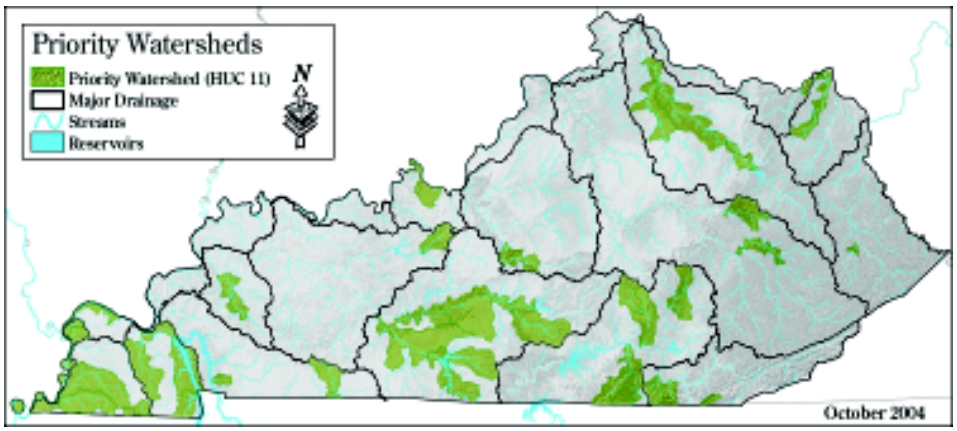
By Ronald Cicerello and Greg Abernathy
Kentucky State Nature Preserves Commission

Kentucky's native freshwater fish and mussel faunas are among the richest in North America, the center of worldwide freshwater mussel and temperate freshwater fish biodiversity. Mussels and fishes are among the most imperiled groups nationally; their distribution in Kentucky is well documented. During the last century, habitat destruction and degradation (e.g., dams, pollution) caused the extirpation or extinction of 21 percent and 4 percent of Kentucky's mussels and fishes, respectively. Of the existing groups, 41 percent of mussels and 25 percent of fishes are imperiled because of significant declines in diversity, numbers and distribution. Although there are efforts to conserve these imperiled aquatic groups, priority areas for conservation have not been assessed. Priority areas must be identified so limited conservation funds can be expended wisely.

The objective of this analysis was to identify hot spots (watersheds with the highest species richness) and priority watersheds for conservation of existing imperiled freshwater mussels and fishes in Kentucky. Using Geographic Information Systems, each of 616 Kentucky watersheds was scored for post-1984 records of imperiled mussels and fishes in the Kentucky State Nature Preserve Commission Natural Heritage Program database. Only 31 percent of the 616 watersheds in Kentucky had at least one imperiled group and only 1.9 percent were determined to be hot spot watersheds (a watershed that supports eight or more imperiled groups). Using a rarity-weighted richness index (RWRI) 53 watersheds were identified as priority watersheds, an area totaling ca. 1,490,896 hectares or 14 percent of Kentucky. This preliminary assessment focused on imperiled mussels and fishes. A future assessment will use data for all native mussels and fishes to determine priorities for biodiversity conservation of these groups.

Visit **www.naturepreserves.ky.gov/inforesources/prwshds.htm** to read the full report.





Maps by KSNPC Staff

Awards

Earth Day ceremony honors 12 community initiatives

By Leslie Cole
Environmental Quality Commission

Mayor Teresa Isaac (left) and Health Commissioner Dr. Melinda Rowe (right) accept an Earth Day award from Betsy Bennett for Lexington's Indoor Clean Air Ordinance, which bans smoking in public places. EQC photo

The Kentucky Environmental Quality Commission joined with the Kentucky League of Cities and the Kentucky Association of Counties to celebrate the 35th anniversary of Earth Day and recognize 12 community initiatives that support job growth, environmental stewardship and social equity — the three pillars of sustainable communities.

"Kentucky communities are coming to understand that the environment can no longer be separate from the economy," stated EQC Chair Lindell Ormsbee. "Our economic health is directly linked to the health of the environment. Each is mutually reinforcing and interdependent to our well-being and quality of life."

The 12 sustainable community initiatives honored were:

- **Kentucky Artisan Heritage Trails,** Eastern Kentucky University
- **Carnation/Nestle/ Silgan Redevelopment Project,** City of Maysville
- **The Preston Project,** Bath County
- **The Partnership for a Green City,** University of Louisville, Jefferson County Public Schools, Metro Government
- **Indoor Clean Air Ordinance,** Lexington-Fayette Urban County Government
- **Regional Community Stewardship,** Boone, Campbell and Kenton counties
- **Strodes Creek Watershed Conservancy,** Clark County
- **Elkhorn City Adventure—Where Nature Meets Culture,** Pike County
- **Concerned Citizens of Russellville and Logan County and KP Hall**
- **Lower Town Artist Relocation Program,** City of Paducah
- **Kenton County Brownfield Initiative**
- **Greenbelt System,** Bowling Green and Warren County Greenways Commission

Nominations for air quality stewardship awards due Aug. 19

By Rose Marie Wilmoth
Division of Compliance Assistance

Do you know an owner of a small business that has gone the extra mile to minimize its impact on the state's air quality? If so, you have an opportunity to nominate this person for a unique award. Nominations for the 2005 Small Business Air Quality Stewardship Awards are being accepted by the Air Quality Small Business Compliance Advisory Panel through Aug. 19.

Kentucky Small Business Stationary Source Technical and Environmental Compliance Assistance Program

The awards recognize small businesses that have shown a commitment to reducing their impact on air quality. The annual awards acknowledge outstanding performance in pollution prevention, reducing emissions or community air quality leadership. This is the eighth year that the panel has offered the awards.

Individuals, businesses and organizations may nominate themselves or others for these awards. A committee of advisory panel members will evaluate the nominations and select the winners.

The awards will be presented on Oct. 11, 2005.

Nomination forms may be requested by writing Rose Marie Wilmoth, Division of Compliance Assistance, Department for Environmental Protection, 14 Reilly Road, Frankfort, KY 40601 or you may call (800) 926-8111.

Forms may be completed online at **http://www.dca.ky.gov/smallbusprogram/stewardshipaward/**

Nominations are due to the Division of Compliance Assistance at the above address no later than Aug. 19, 2005.

Ceremony features energy speaker

By Leslie Cole
Environmental Quality Commission

Kateri Callahan

Is Kentucky on a path toward a sustainable energy future? According to Kateri Callahan, president of the Alliance to Save Energy, the state is advancing important initiatives that will promote greater energy efficiency and a more sustainable energy future.

Callahan, featured speaker at the 2005 Earth Day ceremony on April 22 in Frankfort, said energy efficiency is our country's greatest indigenous energy resource.

Over the past 30 years, studies show that energy efficiency and conservation measures are now displacing the need for 40 quadrillion units of energy each year. Energy efficiency is contributing more than coal, more than nuclear power and even more than oil to meet our country's thirst for energy. Yet it remains a resource that can deliver more—even more quickly, more cheaply and more cleanly—than any other energy supply, given meaningful public policy support. Callahan attributes energy efficiency to federal policies and programs, such as appliance standards, research and development, and ENERGY STAR, which made major contributions to these savings. Still, more remains to be done to increase our nation's energy efficiency.

Energy efficiency must play a central role in the nation's energy future. The United States holds only 2 percent of known world oil reserves.

Our energy use impacts our planet. The United States produces 25 percent of the carbon dioxide—by far the largest share of any country. The ability to meet growing energy needs with domestically produced, environmentally responsible energy is simply unfeasible, and the gap between domestic supply and demand continues to grow, according to Callahan. As an example, we produce 40 percent less oil today than we did in 1970, and meanwhile our demand for oil has grown by 40 percent. The good news is that more and more people understand that using less energy doesn't have to mean sacrifice. In fact, it is the cheapest way to lower greenhouse gas and other emissions, and it can save money in energy bills.

Leadership is emanating from the Commonwealth to advance energy efficiency. The Kentucky Office of Energy Policy conducts workshops for the building trade to increase efficiency and comfort in new home construction and is helping establish a home-energy rating system in Kentucky to improve and inform consumers of energy efficiency in homes. The office hosts workshops on high-performance school buildings and sustainable building practices throughout the year (see *Workshop promotes high-performance schools* on Page 12).

Callahan reviewed Governor Ernie Fletcher's comprehensive energy plan and applauded his emphasis on energy efficiency. "I am impressed that the first nine recommendations all deal with advancing energy efficiency as an effective tool for saving energy, money and the environment," she said. "All too often policy-makers and others treat energy efficiency as an afterthought. It is refreshing and encouraging to see that Governor Fletcher and other leaders in the state have recognized that energy efficiency must be a cornerstone to building a sustainable energy future."

High-school students compete during Envirothon

By Martin Bess
Division of Conservation

Every year, high school students from around the Commonwealth test their environmental knowledge by competing for the title of Kentucky Envirothon champion. The Envirothon is an international environmental competition in which students experience hands-on education and compete to solve environmental problems relating to topics such as soils, aquatics, forestry and wildlife. This year, students were also scored on a verbal presentation based on managing cultural landscapes. The state competition was held in May in Jabez, Ky.

The Woodford County High School team took first place and will represent Kentucky this summer at the Canon Envirothon North American Program in Springfield, Mo.

Oldham County High School received second place, and Todd County Central High School finished third overall.

The competition started out with 39 teams from across the state. Congratulations to Woodford County High School for ranking first in environmental problem solving.

Envirothon sponsors:

Kentucky Association of Conservation Districts and the KACD Auxiliary; Kentucky Department of Agriculture; Kentucky Environmental Education Council; Department of Fish & Wildlife Resources; Kentucky State University; Kentucky Farm Bureau; Jackson Purchase Resource Conservation and Development Area; Laurel County Fiscal Court; Laurel, Wayne, Pulaski, Jackson and Clay county conservation districts; Bluegrass PRIDE and Natural Resource Conservation Service. The Kentucky Division of Forestry, Division of Water, Division of Conservation and USDA Forestry Service also assisted.

Clay named EPPC deputy secretary

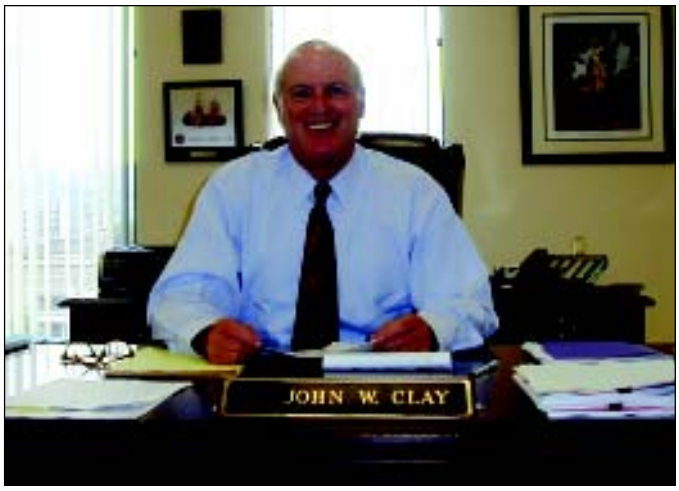
By Dana Norton
Office of Communications and Public Outreach

In March, Governor Ernie Fletcher appointed John W. Clay as the deputy secretary of the Environmental and Public Protection Cabinet (EPPC).

Clay, a certified public accountant with 28 years of experience in financial management, was most recently the executive director of the Office of Alcohol Beverage Control in the EPPC's Department of Public Protection. Clay spent 17 years with Southern Wine & Spirits of Kentucky Inc., formerly Crane Distributing Co., most recently as its director of finance.

He was secretary-treasurer and controller of Crane Distributing for 14 years, directing all treasury, financial, tax compliance, accounting and operational functions of the company. He was an accountant and tax manager in three accounting firms prior to joining Crane Distributing.

"John Clay brings a wealth of financial and managerial experience to a demanding post in one of the most diverse cabinets of our administration," Governor Fletcher stated. "I know he shares our vision of an able, efficient state government dedicated to the best possible public service."



John Clay, a native of Maysville, has been deputy secretary since March. Photo by Cindy Schafer

Clay, a native of Maysville, has been on the job for four months and says the best part about the position is the challenge of working in a cabinet that oversees so many state agencies.

Clay is a graduate of Georgetown College, where he received a bachelor's degree in business administration. He completed additional accounting courses at the University of Kentucky. He is a member of the Kentucky State Board of Accountancy, the American Institute of Certified Public Accountants and the Kentucky Society of CPAs. He enjoys snow skiing, playing golf and reading.

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Environmental and Public Protection Cabinet
Office of Communications and Public Outreach
5th Floor, Capital Plaza Tower
Frankfort, KY 40601

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