



Land Air & Water

Kentucky Energy and Environment Cabinet

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Spring 2012

Land Air & Water

since 1988

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From the Secretary's Desk

During the month of April, Earth Day (April 22) is recognized around the world, and has been for more than 40 years. In the United States and in Kentucky we have made tremendous progress in improving our air, land and water resources over the last 40 years. We've tackled some big problems that posed extreme threats to our environment and to our health. The states, in partnership with the U.S. Environmental Protection Agency, have worked together to implement congressional mandates to reduce air emissions, improve water quality, address contaminated sites, and lead by example in a host of areas. But we could not have made progress without grassroots work from citizens.

In Kentucky, as in many other places, Earth Day has become almost a month-long celebration and call to action. I like that it's not just a one-day event because it shows just how important protecting our environment for current and future generations has become to most of us. People unite to collect trash, plant trees, clean waterways, collect household hazardous waste, educate citizens and perform other activities. We do these activities because we know that our actions and choices really do make a difference.

Here's an example of how individual actions can make a big difference. In March, Matthew Addison, a Trinity High School junior, received the cabinet's Young Environmentalist Award, which recognizes young people who decide on their own to serve as environmental stewards. Each summer for the past 10 years, Matthew and his family and friends wade through a two-mile stretch of the Little Barren River, picking up discarded trash and tires and hauling them back to shore in john boats for disposal. In the ten years they have been cleaning up this stretch of the river, they've collected more than 300 tires, along with other discarded items such as washing machines and other trash.

The Little Barren River is part of the Green River Watershed, which provides habitat to more species of plants and animals than any other system of tributaries in the Ohio River Valley. Matthew knows the importance of this watershed, and has dedicated much of his private time to protecting it. His perseverance, returning to the same stretch of riverbank for 10 years, and his leadership, calling on friends and family to assist in cleanup, are exemplary skills. I hope we can encourage others to look to Matthew as an example, and I look forward to presenting the cabinet's Young Environmentalist Award to other young people in the future.



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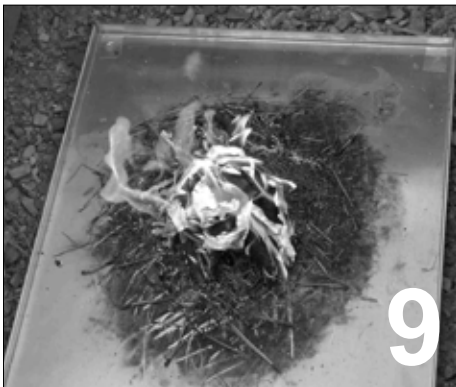
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Our Cover



Toadshade
(*Trillium sessile L.*) was photographed along a creek bank in Frankfort by Todd Hendricks, Division of Waste Management

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K Article and photography by Allison Fleck Division of Water

Karen Burnett smiled broadly in greeting as she emerged from behind her ranch-style brick house, brushing back her snow-white curls with one hand and clutching a three-pronged hoe with the other.

“Let me show you something,” she said without preamble to Zach Couch, coordinator of the Kentucky Wild Rivers Program at the Division of Water (DOW). She led him to a row of five-gallon feed buckets half-filled with soil. Couch leaned closer, curious. Small green shoots poked prodigiously from beneath the surface.

“Onions,” she said with awe. “Can you believe it? They’re already coming up and it’s just February! Honey, I put up 45 quarts of tomatoes last year. What are you planting in your garden this year?”

Couch has developed a genuine friendship with Burnett during the two years it took to arrange a property acquisition that adds 998 acres of ecologically valuable land to the state inventory of protected lands while assuring Burnett her beloved farm will be preserved for posterity.

Kentucky Wild Rivers Program adds

Couch managed the purchase of the land, which straddles Wayne and McCreary counties, through the Kentucky DOW Wild Rivers Program. The property is now protected public land and managed by DOW.

The Kentucky Wild Rivers Act of 1972 designated segments of nine rivers, including a portion of the Little South Fork of the Cumberland River, as Wild Rivers. This designation allows the stream segments to retain many of their natural attributes and protects them from unwise use and development. Each Wild River is actually a linear corridor encompassing up to 2,000 feet of all land on either side of the river.

The act also allows for protection of ecologically important land through fee-simple acquisition using dedicated funds from the Kentucky Heritage Land Conservation Fund (KHLCF). The KHLCF obtains its monies from the sale of nature license plates (*see “They’re Back” on Page 18*) and the collection of unmined mineral taxes and environmental fines. The funds may be used to purchase

natural areas with rare habitats and endangered species; areas important to migratory birds; areas that perform important natural functions that are subject to alteration or loss; and areas to be preserved in their natural state for public use, outdoor recreation and education (*see box on Page 2*).

When property owners are willing, the state may purchase lands within the corridor or within the watershed of the Wild River to further protect the waterway. To date, the Wild Rivers Program has purchased nearly 3,858 acres with an additional four tracts totaling 1,600 acres expected to close by the end of 2012. These lands are subject to the same restrictions imposed on the Wild Rivers corridor.

When Couch learned through a colleague that the Burnett tract was for sale, he jumped at the chance to acquire further watershed protection for the unique waterway. The first step was to check it out personally. Couch wasn’t disappointed. He has spent many hours exploring the hills,





nearly 1,000 acres to inventory of protected lands

vales, fields and streams of the Burnett property located adjacent to the Daniel Boone National Forest.

“The Burnett property as a whole is extraordinary,” said Couch. “The landscape is varied with evergreen and deciduous forests, grasslands and a 600-foot-high sandstone-capped knob with an astounding view of three counties and a glimpse of Tennessee.”

Of particular importance to Couch, however, was the inclusion of nearly 2.5 miles of frontage on the corridor of the Little South Fork Wild River, which qualified the property for purchase through the KHLCF.

“The Little South Fork is known to contain a diverse assemblage of mussels and fish,” said Couch, “but this is the best stream worldwide for the palezone shiner, which is listed as a federally endangered fish species.”

The palezone shiner lives in flowing streams with clear, clean water and rocky, sandy bottoms. The only other known extant population is in the Paint Rock River in Jackson County,

Opposite page: (center right) the sandstone outcrop called “The Pilot” rises above Zach Couch during a winter visit to the Burnett property; (top left) a limestone outcrop on the property; (center left) Karen Burnett gazes at her beloved farm, with the 600-foot Pilot rising behind her in the distance; (bottom left) Zach Couch inches through a tight squeeze to the top of The Pilot.

This page: (top) The clear water of the Little South Fork of the Cumberland River flows through the property; (below) the view from The Pilot extends to three counties and a glimpse of Tennessee.

Ala. Threats to the species include removal of vegetated streamside buffers and consequent warmer water temperatures, channelization, siltation, deforestation and pesticide runoff.

Couch said the land-use restrictions associated with Wild Rivers protection will help prevent these detrimental conditions from occurring.

“Any time you can control what activities occur in a watershed, you can control the biological, botanical and recreational values of that waterway,” said Couch.

The promise of land restrictions was the compelling selling factor for the landowners, Karen Burnett and her late husband, John. Couch praised Burnett for her patience throughout the complicated land acquisition process required by the state.

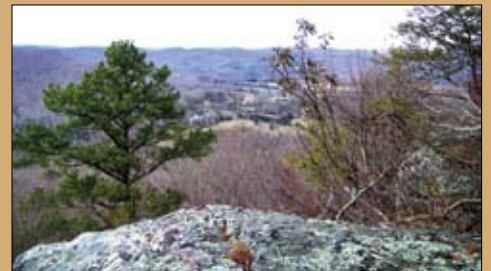
“It took nearly two years to accomplish all the deed searches, appraisals, surveys and environmental reviews,” said Couch.

“At any time during that process, Mrs. Burnett could have pulled out of the deal and accepted another offer. Without her patience

Continued to Page 12

Kentucky Heritage Land Conservation Fund

Fund dollars have been awarded to protect and conserve some of Kentucky’s best-known natural areas: old-growth hardwoods at Blanton Forest in eastern Kentucky; savannah woodlands at Griffith Woods and portions of the Kentucky River Palisades in central Kentucky; urban forests at the Jefferson Memorial Forest in Louisville; bat populations and caves in southern Kentucky; cliff-lined valleys along the banks of the Martins Fork Wild River in Harlan County; and diverse watershed and wetland areas with endangered mussel species at the Green River State Forest in the western part of the state.



Environmental Education in Kentucky

More than information, program provides teaching tools that get students involved

By Ricki Gardenhire
Office of Communications

With instruction from Roberta Burnes, a certified environmental educator with the Energy and Environment Cabinet, third graders at Providence Montessori School in Lexington stood up, waved their arms and acted like cilia, the tiny hairs that keep mucus and dirt out of their nasal passages and lungs, by batting away “particulate matter” in the form of paper wads.

“This activity shows the students how their lungs react to air pollution,” said Burnes. “The point I make with the activity is that even the cilia have a hard time protecting lungs from the very finest particles.”

Amy Richardson, third-grade teacher at Providence Montessori, said her school has used Burnes for several classroom sessions.

“Roberta knows how to manage the children; she keeps the students engaged by bringing in hands-on activities and that’s how children learn,” said Richardson.

Burnes, a Division for Air Quality employee, is just one of more than 130 environmental educators across the state who has been certified through the Non-formal Environmental Education Certification program administered by the Kentucky Environmental Education Council (KEEC).

The KEEC certifies “nonformal educators” to go into classrooms to teach students about the environment. In February, 15 individuals, including two employees of the Energy and Environment Cabinet, joined the community of certified nonformal educators.

The certification course consists of four, three-day workshops with an independent study requirement and four assessments. The application process



ABOVE: Children at Providence Montessori act like “cilia” as they combat particulate matter in the form of paper wads. **LEFT:** Roberta Burnes, a certified environmental educator, discusses the importance of clean air for good health and everyday living. **BELOW:** A student learns how much energy is involved in turning a properly inflated tire.

Photos by Ricki Gardenhire



includes a self-assessment on current environment-related

knowledge and skills, and an essay on strengths and weaknesses.

Elizabeth Schmitz, executive director of KEEC, says the certification program raises the bar for the field of environmental education and also helps those without teaching degrees learn education ‘speak.’

“One goal is to help nonformal educators—those who do not regularly interact in the classroom with students—be able to speak the language of educators,” she said.

A second goal of the program, according to Schmitz, is to teach environmental educators the difference between education and advocacy.

“Many people want to be environmental educators because they love the environment; some are *very* passionate about it and have strong feelings. But as an authority figure—someone who is standing before students in a classroom—environmental educators must teach students *how* to think and not *what* to think about various environmental issues.

“The certification program gives participants tools and techniques to help



students explore environmental issues from all angles and come up with their own conclusions; teaches them how to help the students with their critical thinking skills, and how to get kids involved in active learning,” said Schmitz.

“The program shows participants ways to create authentic learning experiences for students, connect students and their learning to their local community; and how to apply environmental education across all core content. For instance, you can include the disciplines of math and economics, writing, science, social studies, art and physical education into a unit

Continued on Page 8

KY EXCEL member believes in business responsibility

By Mary Jo Harrod
Division of Compliance Assistance

When Good Foods Market & Café Store Manager Dan Arnett and the rest of management and staff decided to “go green” they were committed to the decision, undertaking a number of projects. Now a member of KY EXCEL, the locally owned Lexington store located on Southland Drive is a cooperative business, with 127 employees and approximately 6,000 members in the community. Good Foods’ focus is on local, natural, organic and whole foods. One-third of the produce in the café and store is locally grown, depending on the season.



tacles for those butts were placed in front of the store. “We want to make personal responsibility easy,” says Arnett. Stormwater drains in the parking lot have signs stenciled on the pavement that read “drains to stream,” and the outline of a fish is a reminder to be considerate of the environment. Metal plates in the pavement, stamped with the Lexington-Fayette Urban County Government symbol, have an insert to catch debris but allows water to flow through it. The inserts are cleaned monthly and lined

with absorbent material to filter the water and catch oil, grease and antifreeze, which is then treated as hazardous waste. A grant from Scrub-a-Can made this possible.

On the exterior of the building, bike racks (made from bicycle frames) are available and encourage bicycle usage. Store windows are covered with a reflective film, causing infrared rays to bounce off and assist with climate control and glare.

Inside the structure, low-VOC paint was used, and interior signs and sustainable shopping guides encourage environmental stewardship. Classes and tours tie together healthy living and sustainability. Arnett believes education is the key.

In addition, most of the food coolers now use LED lights and screw-out fluorescents are being phased out; programmable thermostats were put in; prep area floor tiles made of recycled content were installed; compostable and biodegradable food utensils made from potato and corn starches are available at the salad bar

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Welcome New KY EXCEL Members

Be an environmental leader and join KY EXCEL today. To learn more, call 800-926-8111 or visit <http://dca.ky.gov/kyexcel/>.

Master
2trg—Louisville

Advocate
Southgate Community Recycling and Assistance Program—
Southgate

Continued on Page 19

ABOVE: Dan Arnett stands next to a freezer case with LED lighting.
BELOW: Recycling bins behind the store. Photos by Mary Jo Harrod



PRACTICAL MEETS NATURAL

Wetlands aid in stormwater runoff, provide plant and animal habitat

By Cindy Schafer, Office of Communications
In cooperation with Thomas R. Biebighauser, U.S. Forest Service

The city of Owensboro turned an unattractive stormwater basin and drainage ditch into a naturally appearing stream with two constructed wetlands. The project, known as the Devins Ditch Separation Project, is doing more than just providing flood protection and prevention of stormwater from entering the city's overburdened combined sewer system. Since construction, new habitats for wildlife have been established and with the project's close proximity to a public park and Owensboro's visionary greenway trail, the public is now able to experience views that include native plants, trees and a variety of wildlife.

Generally, most stormwater basins look artificial and do not promote habitat for wildlife because of their deep, steep-sided construction that is often lined with rock. The wetlands built for the Devins Ditch project are different. They are shallow with gradual slopes and have features that help wildlife, such as shallow pools of water, islands, dead standing trees and flowering plants. Trees and native grasses are also planted around them that attract nesting songbirds.

The Devins Ditch project was financed by Kentucky's Clean Water State Revolving Fund (CWSRF), and Owensboro was the first city in the Commonwealth to request CWSRF funding for stormwater projects. At the inception of the project in January 2010, there were two main goals the city wanted to address—to reduce flooding along Carter Road and in adjacent neighborhoods



and to prevent stormwater from entering the city's combined sewer system.

"Flood storage was increased by removing more than 3 feet of soil from the area," said Jonathan Nieman, an engineer with CDP Engineers of Lexington that designed the project. "This action also made wetlands possible by lowering the elevation of the basins to just above the water table."

A low dam was also built to increase storage capacity and to prevent flood waters from entering the sewer system. Excess soils were removed and spread on higher ground nearby to improve the quality of farmland.

Overflow from the new stormwater wetlands is now controlled by a pump station that moves excess flow into Persimmons Ditch, an adjacent stream, to prevent stormwater from entering the sewer system. The new project was tested last year in the spring during high rainfall, and there was no flooding.

CDP Engineer Elizabeth Bullock helped the city of Owensboro design more than 29 acres of wetlands and 2,500 feet of meandering stream in the retrofitted basins.

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Arrow arum (above), along with arrowhead, cattail, water primrose and rushes (below) represent a diversity of aquatic plants growing in the wetlands. Photos by Thomas R. Biebighauser



Meet the commissioner

By Evan Satterwhite
Department for Natural Resources

Steve Hohmann *Department for Natural Resources*



As the recently-appointed commissioner of the Department for Natural Resources (DNR), Steve Hohmann is charged with protecting the state's air, land and water through state and federal environmental regulations. *Land, Air & Water* spoke with Hohmann about his new role and his expectations for the future.

Land, Air & Water: What challenges do you anticipate?

Steve Hohmann: With more than 26 years of combined experience as a mine reclamation inspector, mining section supervisor and division director, I expect my role as commissioner to be the most challenging of all. The pressure is always there to achieve a balance between competing interests because each side may have valid issues supporting their position. It's my general nature to meet these challenges head on, and I'm confident that we can arrive at reasonable solutions. It is unlikely that we will solve each problem to everyone's satisfaction; however, I know that the men and women who work in our department have the expertise, the work ethic and the determination to meet the challenges we are facing.

LA&W: Tell me about your first few months as commissioner?

SH: I spent the first month putting out fires and getting myself acquainted with my new role, but also spent a significant amount of time reaching out to the various divisions to learn more about them. Visit-

ing the offices and meeting the employees has been both enjoyable and enlightening. They have shown me that, while short of many of the resources they need, everyone is willing to step up and do their part to complete their mission. We are prioritizing the issues that are in need of immediate attention and working toward setting goals within each division.

LA&W: How is the budget affecting your mission?

SH: The budget, in many cases, may impact our programs significantly. The division directors and I have agreed on several actions that involve filling vacant management positions critical to DNR operations and monitoring the purchase of vehicles and equipment to keep us within the proposed budget. Furthermore, the reduction of General Funds is compounded by the reduction of matched federal monies. For every \$1 of General Funds cut from our programs, we lose \$2.

LA&W: Is there a solution?

SH: To move forward, everyone must be involved and be a part of the solution. We must save every dollar possible in the areas where we can and spend our critical resources more wisely than ever before. We will all be expected to take on more duties and responsibilities, and managers will need to be acutely aware of potential overload. We need to retain our trained and tenured employees by providing encouragement and effective support, but also provide tangible elements like train-

ing, good working environments and safe, reliable vehicles and equipment.

LA&W: What is the most difficult part of being the commissioner?

SH: Balance. The problem is less about being neutral in your decision making and more about balancing competing alternatives to achieve the best solutions. The public expects us to take necessary actions to protect the environment by enforcing the laws and regulations that govern our programs. Equally, the industries we regulate expect a fair and consistent approach to our enforcement because their existence is vital to the well-being of our state. We are all stakeholders in this effort, and we take our responsibility seriously. When we do our jobs correctly, compromise is generally the result. I meet regularly with industry and citizen representatives to ensure they understand the guidelines we have established so that they are better able to plan and execute their work and understand our role. It is very important that we continue dialogue with both sides to demonstrate transparency in our decision making.

LA&W: What are important issues to the general public?

SH: Natural resources like forest products, oil, coal, gas and other minerals are used to create jobs, provide needed materials and stimulate the economy because they are traded as a commodity. Today,

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The Year of Kentucky's Forests

Governor Steve Beshear signed a proclamation earlier this year recognizing the Kentucky Division of Forestry's (KDF) 100th anniversary and declaring 2012 as 'The Year of Kentucky's Forests.' In addition to the decree, resolutions recognizing KDF employees and acknowledging that all Kentuckians benefit from forests were adopted by Kentucky Legislature during the 2012 regular session in House Resolution 105 and Senate Resolution 107.

"I commend the Division of Forestry and its employees for serving the Commonwealth with purpose, dedication and commitment for the past century," Gov. Beshear said. "Through fighting wildfires, providing technical assistance to landowners and communities and protecting forest health, Kentucky is committed to ensuring the sustainability of our forests for another hundred years and beyond."

"Forests play a critical role in our daily lives; they not only have economic and environmental value, they have social and cultural value," said Leah MacSwords, director of KDF. "This year not only serves as a platform to celebrate our accomplishments, it serves to increase awareness and encourage all Kentuckians to help protect and conserve our forests more sustainably," added MacSwords.

Nursery closed

Due to recent storm damage caused by the March 2 tornado, the Kentucky Division of Forestry's Morgan County Tree Nursery is closed to the public until further notice.

Tree seedlings are still available; however, shipment may be delayed. To inquire about seedling orders and shipments, contact your local district office or call 800-866-0555. Further information may be found online at the KDF's website at <http://forestry.ky.gov/pages/default.aspx>.

Meet the commissioner

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the industries we regulate are high tech. They no longer take out trees with a cross-cut saw or mine coal with a pick and cart. Industries have developed efficient methods of extracting resources in high volume. As a result, the land and the people who reside in our beautiful Commonwealth are more at risk, and adequate safeguards must be put in place to reduce any potential negative outcomes. It is the duty of our lawmakers, government employees and interested citizens to establish a framework that we can all live with. Industries should be able to produce their goods at a reasonable cost, but not at the expense of our fragile environment. I believe the two can co-exist, but not without a lot of work by everyone involved.

LA&W: What are your goals for this position?

SH: My goal is to efficiently use every resource available, from technology to effective communication, in managing this large and diverse department. We have a strong leadership team and more than 800 dedicated employees who are focused on their duties and getting the job done. I'm very appreciative of their work, and I want them to have the resources they need in an environment that recognizes that initiative and hard work. With this successful combination, and in spite of the budget challenges we face, our critical missions can and will be accomplished. When we succeed, the Commonwealth benefits greatly and will remain robust for our children and their children. Division leaders are establishing individual goals for their organizations and, when combined, the department will have a solid plan that we can implement.

13 Trees

**A Poem by Roberta Burnes
Division for Air Quality**

To my son Gareth on his 13th birthday

*I offer you fragrant Red Cedar
May you always seek opportunities
In every patch of sunlight, no matter how
small*

*I give you Basswood
To remind you of your inner strength
And the healing power of the earth*

*I offer you the patience of Persimmon
Whose sweet fruit ripens only after bitter
frost
There will be times when you'll need
Persimmon's thick skin*

*I give you Willow, limber and strong
May you weather life's storms
With grace and humility*

*I offer you Long-leaf Pine
Whose ally is fire
And Bald cypress, lover of water*

*I give you bold Catalpa
For your big heart
And your twisted sense of humor*

*I offer you Kentucky Coffeetree
To remind you of your Bluegrass roots
And whose richly patterned bark—like you—
is a work of art*

*I give you Bur Oak for your creativity
Great ideas are like seeds;
May yours fall on fertile ground*

*I offer you Redbud
For hope and color
And all that is beautiful in the world*

*I give you Osage Orange
With your tough determination
May you frustrate those who would cut you
down*

*I offer you Chinquapin Oak
Towering and timeless
For the wisdom you have before your years*

*I give you Red Maple
For your generous spirit
Sweetly giving of your gifts to all you meet.*

Environmental Education in Kentucky

Continued from Page 3



LEFT: Michelle Shane (left) with the Division of Water and Virginia Lewis, Division of Waste Management, are the cabinet's most recent graduates of the certification program.

BELOW: Roberta Burnes talks to students about the importance of properly inflated tires.

Photos by Ricki Gardenhire

about recycling," said Schmitz.

The certification program also helps environmental educators gain credibility with industry.

This year, KEEC will evaluate and revise course materials and revamp the program in preparation to apply for accreditation, now offered by the North American Association for Environmental Education. KEEC also will work toward providing a certification program in a more condensed timeframe. Applicants can enter the program in 2013.

"Research studies have shown that when environment-based education is incorporated into schools, student achievement, academic progress and student motivation increases," said Schmitz.

"This education focus can translate into 21st century jobs as our country and state look for energy and sustainability solutions that lessen the impact on our environment."

Virginia Lewis, an employee of the Division of Waste Management and a February graduate of the certified environmental education program, said that serving as an environmental educator is an important part of her work.

"The program prepares participants to appropriately discuss environmental con-

cepts, issues, problems and solutions with people of all ages," said Lewis. "This is an asset to our program, our community and the Commonwealth.

"It serves all of us to remember that we are all children in ways and can all benefit from learning a little bit more about nature. While teaching children about nature is important, environmental education is fundamentally different from "nature education" in that it addresses



inter-relationships between humans and the environment. It also differs from environmental science because environmental education is concerned with values and skills as well as knowledge. Children, adolescents and adults—we can all do things now to take better care of our environment and ensure that the children now and children of the future have a healthy environment in which to live and pass on to their children," added Lewis.

The state's cadre of environmental educators is available for presentations to schools and civic groups. A complete listing of certified environmental educators can be found at <http://keec.ky.gov/certification.htm>.



Kentucky Environmental Literacy Plan

Kentucky has a rich history of promoting an understanding of the environment. Besides employing an environmental educator since the 1980s, Kentucky is one of the few states in the nation that has a comprehensive state environmental education master plan. The plan, *Land, Legacy and Learning*, was last revised in 2009 by KEEC. It is published alongside the results of KEEC's survey of Kentuckian's environmental attitudes, behaviors and understandings, which can be found at <http://keec.ky.gov/publications/surveys.htm>.

In an effort to tap the benefits of environmental education and potential grants that could come with proposed federal legislation that states the need for environmental literacy, the Commonwealth has developed the Kentucky Environmental Literacy Plan (KELP), a framework for providing environmental education through an interdisciplinary approach to Kentucky's students.

In December 2011, the Kentucky Board of Education moved that the Department of Education should implement the plan in conjunction with the implementation of the Next Generation Science Standards. A timeline is under development to ensure resources are in place before school districts are required to incorporate the changes and to determine what steps can occur without additional funding in place. Additional information about the KELP can be found at <http://keec.ky.gov/>.



Burning questions

Campfires, Trash and Your Health

By Roberta Burnes
Division for Air Quality

It's hard to imagine camping without the comforting warmth of a campfire. Friends gather round the dancing flames, roasting marshmallows, singing songs, telling stories ...and all too often, burning trash.

But what happens to that trash you throw on the campfire? How dangerous are the fumes emitted by that burning plastic bag or Styrofoam cup?

Disposing of waste by burning is a practice that dates back thousands of years. But today's trash is different than the stuff our grandparents used to burn. Plastics, Styrofoam and other synthetic materials are far more common in trash these days. When burned, these materials release toxic pollutants that can easily be inhaled and even ingested when the smoke finally settles on food or water. Many of these pollutants are linked to an increased risk of cancer and other serious health problems.

Furthermore, airborne pollutants aren't the only problem. When fire circles are cleaned out, it's common practice to scatter the ashes on the ground for disposal. The ash that remains after trash is burned is laced with heavy metals, and

handling it can expose workers and the environment to high levels of lead, mercury and cadmium. (See *What's Burning in Your Campfire on Page 10*).

Kentucky's Open Burning Regulation

The Kentucky Division for Air Quality (DAQ) knows a thing or two about open burning. Open burning means burning any material in the open air without an approved burn chamber, stack or chimney with pollution control devices. Last year, DAQ received more than 700 citizen complaints about open burning.

Many states prohibit the open burning of trash, and Kentucky is no exception. Kentucky's open burning regulation (401 KAR 63:005) prohibits burning of most things found in household garbage, including all plastics, food scraps, Styrofoam, fabric, metal and slick-coated paper products. The regulation has been on the books for years, but illegal open burning continues to be a problem in many parts of the Commonwealth.

"Kentucky's open burning regulation is there to protect human health," said DAQ Director John Lyons. "When

you burn even the most common household trash—whether it's at home or in a campfire—you expose yourself and others to dangerous pollutants."

Smoke from trash burning depresses the central nervous system and is especially harmful to children, the elderly and those with existing health problems. Particulate matter, corrosive chemicals and other emissions can damage developing systems in children and lead to serious health problems in all ages.

Many campers use newspaper to start a fire—which is perfectly legal, said Lyons. Still, the best practice is to "burn only seasoned campfire wood, and throw your trash in the garbage can."

You Are What You Burn

All of these pollutants are of concern, but perhaps none more so than dioxin. Dioxin is the short name for a family of chemical compounds that include some of the most toxic substances known. According to the World Health Organization, dioxins can cause reproductive and developmental problems, damage the immune system, interfere with hormones and cause cancer.

How Can You Help?

- Burn only seasoned, dry wood.
- Use natural materials for kindling.
- Never burn plywood or treated, painted or stained wood. Ash and smoke can be extremely toxic.
- Don't move firewood. Protect against the spread of Emerald Ash Borer by burning wood where you buy it.
- Pack supplies and food in reusable containers.
- Recycle cans, plastic, glass and paper.
- Pack in only what you need.

Dioxins are byproducts of certain manufacturing processes, and they are also produced when things are burned. Anything containing chlorine—like PVC, plastics and even foods containing salt—produces dioxins when burned.

According to the U.S. Environmental Protection Agency (EPA), dioxin emissions have decreased by 90 percent since 1987.

“That’s great news,” said Lyons. “The bad news is, burning household trash is now the largest source of dioxins in the country.”

Once released into the air, dioxins quickly settle on water and soil, entering the food chain. The EPA estimates that 90 percent of human exposure to dioxins comes from eating contaminated food. Once consumed, dioxins remain stored in fatty tissue for years.

All of this is especially troubling when you consider that many campers cook food over the very fire in which they’re burning trash. “You wouldn’t cook food in your garbage can,” said Lyons. “Burning trash and cooking food just don’t go together.”

Building Awareness

Many campers already know not to burn plastic and metal, but they may not be aware of the hazards of burning other kinds of trash. To help get the word out, DAQ is partnering with state and federal agencies on an awareness campaign in Kentucky’s parks and campgrounds. The campaign will include posters, brochures and displays at campgrounds in time for the summer 2012 camping season.

It’s a good fit for agencies like Kentucky State Parks, which has long advocated the principles of the international program known as *Leave No Trace*.

“We always encourage visitors to minimize their impact on our natural areas,” said Lisa Deavers, western region recreation coordinator for Kentucky State Parks. “This campaign fits right in with *Leave No Trace* guidelines.”

For more information on Kentucky’s open burning regulation or to report suspected cases of illegal burning, call 888-BURN-LAW (888-287-6529). For more information on *Leave No Trace* in Kentucky State Parks, visit www.kspappdev.com/leave-no-trace/.



LEFT: Sherry Dingle, a fire lab employee, conducts a controlled test using commonly burned items to determine the amount of toxic substances released in a campfire.

BELOW: Ashes were tested for heavy metals like mercury and cadmium. Photos courtesy of the Missoula Technology and Development Center

What’s Burning in Your Campfire?

In 2004, the Missoula Technology and Development Center conducted an informal study to find out what kinds and how much of these toxic substances are released when trash is burned in a campfire. The study analyzed gas emissions and ash content from 27 commonly burned trash items, comparing them to emissions and ash from wood fires with no trash.

“Our forest rangers wanted to know what they were being exposed to when cleaning out campfire ashes,” said project leader Mary Ann Davies. “That gave us the idea of burning different things in a simulated campfire setting, to see what was left over in the ashes. We were also interested in knowing what campers were exposed to during trash burning, so we decided to analyze emissions as well.”

In the study, 27 simulated campfires had small amounts of specific trash items added to them; an additional two campfires were burned without trash. All of the simulated campfires burned identical amounts of ponderosa pine branches and needles.

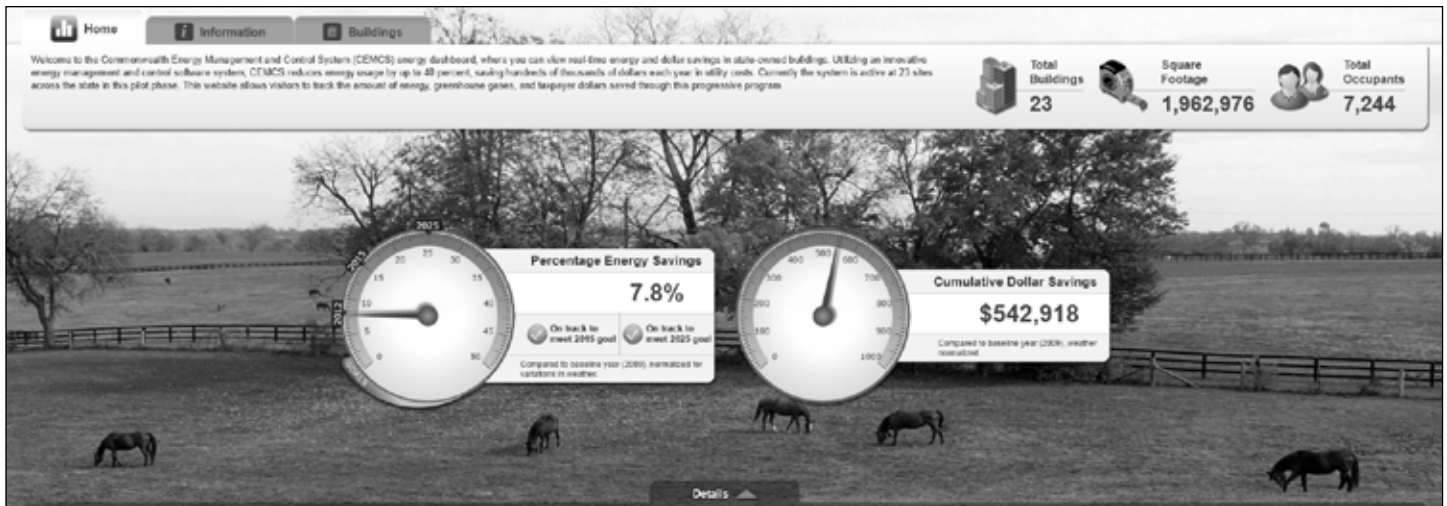
Davies chose a variety of things commonly burned in campfires, including food packaging, batteries, pieces of fiberglass fishing rod and fishing line, and disposable diapers. During each burn, Davies collected the smoke from each fire in a stainless steel canister for analysis using a gas chromatograph mass-spectrometer. This high-tech equipment separates components in the emissions, identifying each one based on its chemical signature.

Fires with Wood Only

Fires that burned only wood produced significantly lower levels of hazardous air pollutants. Those measured in the study included acrolein, acetaldehyde, benzene, furan, naphthalene, styrene, toluene and xylene. Ash samples from wood-only fires contained high concentrations of barium, potassium, calcium, sulfur and magnesium. Fires with no trash burned hotter and produced less smoke than those with trash.



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Dashboard tracks energy, dollar savings

Governor Steve Beshear’s energy plan for Kentucky has established a goal of reducing energy consumption in state buildings 15 percent by the year 2015 and 25 percent by the year 2025 with the intention to lead by example.

In order to meet those goals, a pilot project—Commonwealth Energy Management and Control System (CEMCS)—was introduced by the Kentucky Finance and Administration Cabinet through their Department for Facilities and Support Services. It was created using a \$3.65 million energy management grant from the American Recovery and Reinvestment Act to gain an understanding of the energy consumed to operate state facilities and the means to manage energy consumption. More than

\$600,000 in annual savings is expected from optimized energy management in the CEMCS pilot of 43 buildings at 23 sites across the state.

CEMCS looks at utility usage and billing for each facility and sets a baseline for normal use and operating costs. It also provides the means to rank all buildings based on energy use per square foot and to allow for further investigation of facilities that are deemed energy inefficient, thus helping prioritize energy-efficiency retrofit projects and expenditures. CEMCS will also help facility managers to make informed decisions about heating, cooling and lighting operations, providing the ability to turn off systems when appropriate. Upon completion of the pilot project, it is expected to be integrated into

all state government facilities.

“This advanced, high-tech system is truly forging the way for how our government will view and conserve energy now and in the future,” said Gov. Beshear. “CEMCS is yet another big boost toward Kentucky’s reputation as a national leader in green innovation and efficiency. The pilot is already saving taxpayer dollars in utility costs and reducing energy consumption.”

Visit <http://kyenergydashboard.ky.gov> to learn more about each of the buildings in the pilot and to view the energy unit and dollar savings in real time. CEMCS will track and reduce energy usage in state buildings by up to 40 percent, saving hundreds of thousands of dollars each year in utility costs.

What’s Burning in Your Campfire? *Continued from Page 10*

Fires with Wood and Trash

All fires with wood and trash produced higher levels of toxic emissions than fires with wood alone. The worst offenders were batteries, fiberglass fishing rod, plastic bags and a mixture of candy and cigarette wrappers.

Burning plastic bags released high levels of furans compared to wood alone. Furans are a class of chemicals closely related to dioxins and are linked to cancer, birth defects and other serious health problems. Plastic bags also released eight times as much acrolein as wood alone. Exposure to acrolein can cause severe irritation to the eyes and respiratory system.

Davies was surprised at the levels of heavy metals found in ash residue from burning trash. Burning plastic cup lids pro-

duced nearly five times the amount of lead than fires that just burned wood. Mercury was barely detectable in wood-only ash, but burning candy and cigarette wrappers produced three times as much mercury in the ash residue. Even burning a simple-colored cardboard box produced significant levels of cadmium in the ashes.

“Based on these results, it’s clear that anyone who handles campfire ashes should wear gloves and a respirator to minimize exposure to toxins,” said Davies. The bottom line? “If you care about your health, if you care about the great outdoors, don’t burn trash in a campfire,” said Davies.

To read the complete report, see “What’s Burning in Your Campfire?” at <http://air.ky.gov/Pages/OpenBurning.aspx>.

Kentucky Wild Rivers Program adds nearly 1,000 acres to inventory of protected lands *Continued from Page 2*



and the hard work of personnel from the Division of Real Property, this project would not have been a success.”

And other offers were made, but Burnett said she was never tempted.

“This guy showed up in a three-piece suit carrying his briefcase, and all he wanted to know about was the mineral rights,” she said, shaking her head. “John and I never wanted our farm parceled out and we certainly didn’t want it mined. With Zach and his program, I knew that this land we loved and cared for all these years would be preserved intact. This has been a kind of heaven to us—there’s

something almost spiritual about having this land. It’s comforting to know that I can come back whenever I feel the need to get away.”

Others, too, will soon have the pleasure of experiencing the spirituality and natural beauty of the Burnett property when the land opens to the public for limited uses in 2012.

For more information about the Kentucky Wild Rivers program, call Allison Fleck at 502-564-3410. For information about the Kentucky Heritage Land Conservation Fund, call Zeb Weese at 502-573-3080.

Zach Couch enjoys the view from atop The Pilot. Photo by Allison Fleck

PRACTICAL MEETS NATURAL *Continued from Page 5*

“We wanted the people in the community to have an area that was attractive and interesting to look at,” she said.

Bullock and Nieman added many features to the Devins Ditch project that improved habitat for wildlife and plants. For instance, turtle nesting sites were created from sandy soils that were uncovered during construction. Islands of sand were formed to provide turtles with dry places to bury their eggs. Areas of shallow water were formed to provide habitat for shorebirds such as the spotted sandpiper and killdeer. As the shallow portions of the wetlands dry in summer, the exposed mudflats provide critical feeding sites for migrating birds and unparalleled bird watching opportunities.

The “natural” look of the wetlands also includes the placement of large logs and dead standing trees, called snags. Birds, like the Kingfisher and purple martin, have been observed perched on these snags. Logs in the water provide an excellent place for turtles to sun themselves and ducks to preen their feathers.

Small, ephemeral wetlands were built to give frogs, toads and salamanders safe places to lay eggs. These wetlands, called



vernal pools, can be expected to dry in the fall, thereby eliminating fishes that prey on amphibian eggs and tadpoles.

Trees and shrubs adapted to growing in moist ground were planted in and around the wetlands, including bald cypress, buttonbush, black willow, alder, swamp dogwood, pin oak and swamp white oak. In addition, aquatic wildflowers such as rose mallow, cardinal flower and blue flag iris have been planted to increase the beauty of the area and to help pollinators. The higher ground surrounding the wetlands was sown in native switch grass and partridge pea to provide birds with places to nest. A bonus is that these plantings will not require mowing, reducing maintenance costs.

“People often worry about mosquitoes when the ‘wetland’ word is mentioned,”

says Bullock. “But, our examination of the wetlands at Devins Ditch shows there was none found.”

Dragonflies, damselfly, aquatic beetles, frogs, toads and salamanders are doing a good job consuming any mosquito larvae that could be present in the waters.

The stormwater wetlands at Devins Ditch should be inexpensive to maintain because there are no dams to mow or spillways to wash out.

“We hope their success will encourage other communities to consider building wetlands to treat stormwater,” says Bullock.

Large logs and dead standing trees provide a perch for birds and other animals.

Photo by Thomas R. Biebighauser



Middlesboro Tannery: one step closer to reuse



By Dan Phelps
Division of Waste Management

A site that has been the subject of multiple lawsuits and numerous attempts to remedy environmental issues for more than 40 years has, at long last, received the attention many in a southeast Kentucky community have been seeking. Through the Kentucky Division of Waste Management's (DWM) federal section of the Superfund Branch, the pollution problems brought about at the Middlesboro Tannery are becoming a thing of the past.

Late in 2011, DWM declared the site an "imminent threat" to the environment, allowing Energy and Environment Cabinet (EEC) Secretary Len Peters to give the division the authority to enter the property, assess the hazardous conditions and begin the process of removing contaminated debris.

Operating for more than a century under various names and ownerships, the Middlesboro Tannery was once one of the city's largest employers until the 1990s. Around 1970, it began using a technique that involved the use of chromium compounds to tan leather.

In 1983 the Yellow Creek Concerned Citizens Group filed a

\$31 million class action lawsuit against Middlesboro Tannery and the city of Middlesboro for damages resulting in the discharge of chemicals into the city's wastewater treatment plant that entered Yellow Creek and eventually affected the water supply. The group settled with the city for \$390,000. Ultimately, the group won a \$15 million settlement against the tannery.

In 1986, a consent decree was filed between the city of Middlesboro and the Middlesboro Tannery. In 1989, both were fined for violating the decree. Middlesboro Tannery also filed for Chapter 11 bankruptcy in 1989 for nonpayment of sewer service charges. The tannery shut down its operations in 1998.

In January 2001, DWM inspectors discovered that unknown parties were using the facility for drum and container disposal.

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Clockwise from top left: Inside the main building of the tannery in November 2010; demolition of buildings in October 2011; aerial view of the property in July 2011; filling sediment lagoons in February 2012. Photos by DWM

Lack of water prompts emergency action

Cooperation and ingenuity help restore water supply to Harlan County community

By Allison Fleck
Division of Water

Nearly 1,500 residents of the Bledsoe/Green Hills community of Harlan County are savoring every drop of water that flows from their taps following a three-week interruption of service in late January and early February that made daily life uncomfortable, rankled citizens and summoned the Kentucky National Guard.

"I have got a barrel out there that I catch rain water in to flush the commode," Bledsoe resident Linda Scruggs told the Harlan Daily Enterprise during the water outage.

Scruggs said caring for herself and a 10-year-old child was hard enough without water, but add five dogs and seven cats and it became an even bigger catastrophe.

"I had to dig a hole in the ground to catch water for the dogs to drink," said Scruggs.

The extended outage followed nearly three months of intermittent service resulting from leaks and valve failures in the Green Hills Water District (GHWD) system. The latest outage resulted from equipment issues at the Pineville Utility Commission, from which GHWD purchases its drinking water. The Green Hills distribution system main is 20 miles long and supports four storage tanks.

By late January, only two of the four water tanks held water, and even that was barely enough to keep the school located below one of them in session.

"It was a priority to keep the water valved off to a large portion of the system so that water could be fed to Green Hills Elementary School," said Rob Miller, environmental control supervisor at the Division of Water London Regional Office. "But even though



TOP: Treated water was stored in water bladders, called blivets, capable of holding 3,000 gallons during the interruption in water service.

Photo by Terry Humphries

BOTTOM LEFT: Spc. Samuel Blackburn of the 103rd Brigade Support Battalion adjusts the flow of water through a purification system in Bledsoe on Feb. 8.

Photo by Capt. William Mattingly, 103rd BSB

BOTTOM RIGHT: Rob Miller with the Division of Water stands beside one of the water bladders where treated water is stored. Untreated water is stored in the red mobile tank in the background.

Photo by Terry Humphries

the school was open, families with school children were without water, so the situation remained difficult."

Immediate assistance came from local sources, including the Harlan Wal-Mart, the Christian Appalachian Project and Operation Sharing, all of which donated thousands of gallons of water.

Meanwhile, volunteers with the Harlan County Rescue Squad and the Harlan County Sheriff's Office went door to door checking on people.

"Several options were considered as the water outage continued," said Miller. "The idea of directly feeding the spring water into the distribution system was rejected because of the possibility of contaminating the entire system. The suggestion to close school and channel water to customers was rejected as a temporary measure, and hauling water via tanker trucks simply would not have been very effective."

With no guarantees of a repair date for the Pineville filter, the Green Hills Water

Continued on Page 15



Members of the Kentucky National Guard check the hoses pumping treated water into a water storage tank. Photo courtesy of Nola Sizemore, Harlan Daily Enterprise

Note: On Jan. 31, the Green Hills Water District voted to merge with Black Mountain Water District to improve management of water distribution in the community. On Feb. 13, Black Mountain approved the merger.

Lack of water prompts emergency action

Continued from Page 14

Board reached out to the Kentucky Division of Water through its regional office in London.

“With Pineville cut to half capacity, there was no alternative water source that Green Hills could access,” said Miller. “Looking at a map, it seems like a short distance to the water pipes in Harlan, but it’s actually up and over a mountain—a huge hurdle for installing a water line.”

On Feb. 2, a local state of emergency was issued by the governor due to the potential for serious public health consequences. The emergency declaration opened the door to assistance from the Division of Emergency Management and the Kentucky National Guard. The guard subsequently ordered mobile water purification systems to Harlan County along with 15 soldiers assigned to Company A of the 103rd Brigade Support Battalion in Danville.

“We truly are thankful that the National Guard [did] this for us,” said Bledsoe resident Allen Randall Burkart.

The mobile water system the soldiers provided, called a tactical water purification system, is capable of producing 1,500 gallons of potable water per hour from any water source using a reverse osmosis filtering system. The state-of-the-art unit includes a pretreatment system, chemical injection, high-pressure pump, control panel, valves, piping, cold weather protection, wastewater collections and five 3,000-gallon collapsible onion tanks, called blivets.

DOW Drinking Water Coordinator Julie Roney said the reverse osmosis process was the ideal treatment for the spring water, which has high turbidity and exposure to surface elements.

“Turbidity, which is a cloudiness caused by suspended sediment, is more than just an aesthetic,” explained Roney. “Contaminants like viruses or bacteria can become attached to the suspended solids and basically shield them from disinfection by chlorine.”

Reverse osmosis purifies water using a membrane-technology filtration method that removes many types of large molecules

and ions from solutions by applying pressure to the solution when it is on one side of a selective membrane. The result is that solute is retained on the pressurized side of the membrane and the pure water is allowed to pass to the other side.

With the equipment set up in a Bledsoe parking lot, the spring water began flowing through an existing pipe through a fire hydrant, into a dump tank. From there it was pumped into the purification unit, then the treated water was stored in the blivets. Samples of the purified water were sent to a lab, which confirmed it was safe to drink.

On Feb. 6, treated water from the blivets was flowing into the nearest Green Hills storage tank. Three days later, two of Green Hills’ water tanks were half full.

“It’s difficult to fill a system when it’s dry because you also have to fill the distribution line, which can take tens of thousands of gallons,” said Miller. “Even in the best of circumstances, it can be tricky to balance usage and supply, but we had very high demand as water began to flow. Everyone wanted to get their clothes washed after such a long wait.”

Repairs were finally completed on Feb. 16, and Pineville resumed full pumping services, producing 2,200 gallons per minute.

With the crisis over, the National Guard packed up their equipment to end a 16-day rescue mission and returned to Danville. Pvt. 1st Class Robert Clark said it was all part of their job.

“We’re here to help,” said Clark. “We’re trained in this sort of thing and have done it many times.”

Harlan County Emergency Management Director David McGill said there were many agencies and people to be thankful for.

“There were many who helped us in this situation—private partners, such as coal mining companies, coal businesses, businesses and charities outside of Harlan County who stepped up and offered their services to help,” said McGill. “We’re very appreciative of this. It took all of us to get this done.”

Tribute to a colleague, friend



It is with a sad heart that the Division of Compliance Assistance (DCA) says goodbye to Steve Crossman, our friend and colleague. Steve, a trainer who specialized in drinking water systems operations, passed away unexpectedly on Dec. 29, 2011, at his Lawrenceburg home.

Steve was known and respected throughout the operator community. His charismatic teaching style was enjoyed by all of his students. His natural ability to convert difficult concepts into real-life examples allowed operators to apply his knowledge and ensure safe water throughout Kentucky. Steve understood the importance of operator integrity, and his passion for the profession was reflected in the personal investment he made into each of his students. He

measured his success by the success of the operators he mentored.

Although Steve's commitment to his profession was remarkable, it was his personal character that will be missed most by all those who knew him. Not afraid to laugh at himself, his free spirit eagerly explored opportunities for self-expression and happiness. He taught that a full life includes a giving spirit and an open heart. Steve freely offered his unfiltered advice and friendship to anyone who needed it, or as he would say, "to anyone stupid enough to take it." He exemplified self-sacrifice by giving away his time and money and never expected anything in return.

While we will miss Steve greatly, we will continue to celebrate his life, stay motivated by his passion and strive to serve others with a heart like his. We're proud of you, Steve.

Blog debuts

The Division of Compliance Assistance, within the Department for Environmental Protection (DEP), has created a new communications tool to stay in touch with wastewater, drinking water and solid waste operators across the state. Check out *Operation Matters*, a blog that provides a variety of information, including job opportunities, updates on regulations, reminders about training events and license renewals and other information relevant to industry professionals. Visit the blog at <http://kyocp.wordpress.com/>.

To receive updates from *Operation Matters*, operators can bookmark the site or receive notifications about new posts via emails or RSS feeds on their computer or smart phone.

Subscriber feedback is welcome. Simply call or email DEP using the information provided on the "contact us" page.

Arbor Day at The Arboretum

The Arboretum, Kentucky's official State Botanical Garden, will roll out the "green" carpet April 28 to welcome visitors to their Arbor Day celebration. The annual event is Kentucky's largest Arbor Day festival and draws more than 2,000 visitors each year. Activities include tree planting, more than 40 exhibitors, children's activities, guided native tree hikes and a tree

seedling giveaway. The free event, sponsored by Kentucky Utilities, Kentucky American Water and Lexmark, runs from 10 a.m. to 2 p.m. and includes free admission to the Kentucky Children's Garden. The Arboretum is located on the campus of the University of Kentucky in Lexington. For more information, call 859-257-6955 or visit <http://www.ca.uky.edu/arboretum/>



LEFT: This University of Kentucky display provided information about spiders and the emerald ash borer to visitors at last year's event.

RIGHT: What better way to celebrate Arbor Day than by planting a tree? Lexington Mayor Jim Gray (third from left) joins citizens in the annual tradition at The Arboretum Arbor Day festival. Photos courtesy of The Arboretum



Pennyrile State Forest boasts horse camp facility; hosts 4th Annual Chilly Ride

New horse-friendly campground at adjacent state resort park open year-round.

By Lynn True
Division of Forestry

At Pennyrile State Forest, horseback riders can spend a day or weekend exploring the public trails thanks to a new horse camping facility located on the adjacent state park property. The Equine Campground at Pennyrile Forest State Resort Park opened to the public last spring and is one of four in the state park system specifically designed for horseback riding activities. The campground, which includes hitching posts, hookup for water and electricity, and a new bath house, will serve horse riders throughout the year as well as during special events like the annual Chilly Ride held each November.

“Horseback riding is a great activity for families to do together, and our group loves the scenic views and natural features at Pennyrile State Forest,” said Cheryl Boren.

Boren, an organizer for the Chilly Ride event and a founding member of Women on the Edge Trail Riders, which sponsors the event, also remarked that more than 325 riders and horses from several states participated in the 2011 Chilly Ride.

“Pennyrile State Forest has more than 40 miles of horse trails, making it

one of the best public areas to explore the backcountry of western Kentucky,” said Leah MacSwords, director of the Kentucky Division of Forestry (KDF).

Tim Crowell, KDF forester at Pennyrile State Forest, explained that the forest and trails are managed using practices that will ensure long-term forest health and productivity.

“Good forestry practices incorporate managing, growing, nurturing and harvesting trees not only for timber production and wildlife habitat, but for aesthetics and outdoor recreation as well,” said Crowell.

In addition to Pennyrile State Forest, KDF owns and manages eight other state forest properties and maintains horseback riding trails on six of the state forests. For more information about state forest properties, visit KDF’s website at <http://forestry.ky.gov/Kentuckystateforests/Pages/default.aspx>. Further information about the campground facilities at Pennyrile State Forest Resort Park can be found on the Kentucky State Park’s website at <http://parks.ky.gov/parks/resortparks/pennyrile-forest/default.aspx>.



TOP: More than 325 riders participated in the Chilly Ride in November.

ABOVE: Riders of all ages enjoyed the horse trails and scenery at Pennyrile State Forest during last year’s event.

Photos courtesy of Women on the Edge Trail Riders



“Not only do nature license plates provide funding to purchase extraordinary properties, but they create awareness among motorists by providing small, traveling billboards that draw attention to the program.”

— Zeb Weese, biologist consultant with KHLCF

Based on popular demand, the Kentucky Heritage Land Conservation Fund (KHLCF) has turned back the hands of time to reissue three nature license plates—the bobcat on a rhododendron branch, the Viceroy butterfly perched on a goldenrod stem and the cardinal landing on a Kentucky Coffeetree branch.

Since 1995 money raised from the sale of “Nature’s Finest” license plates and other sources has purchased, protected and managed more than 42,000 acres of natural lands in 62 counties. The ‘new’ plates should be on the road in 2012. When one of these plates is purchased an extra \$10 is assessed for the procurement of significant natural areas in Kentucky.

Half of the funds raised are distributed to state government agencies to protect land—Kentucky State Parks, Kentucky Department of Fish and Wildlife Resources, Kentucky Division of Water, Kentucky Division of Forestry and the Kentucky State Nature Preserves Commission each

receive 10 percent of KHLCF funding. Cities, counties, universities, conservation districts and other eligible public entities have also been awarded grants to purchase and manage land as municipal parks and even research areas.

The KHLCF Board funds the purchase of properties that provide habitat for rare and endangered species, areas important to migratory birds, areas that perform important natural functions that are subject to alteration or loss, and areas to be preserved in their natural state for public use, outdoor recreation and education. Habitat conservation is the primary goal of the board, but it also recognizes the importance of providing Kentuckians with places to enjoy the great outdoors through hiking, wildlife viewing, fishing and other compatible activities. Any property purchased using KHLCF funds is protected forever by a conservation easement to ensure that the land will always be used as a conservation area.

The last few months have been big

for the KHLCF. State agency partners have added 1,000 acres to the Little South Fork Wild River Corridor in Wayne and McCreary counties (*see article on Page 1*) and the new Big Rivers State Forest and Wildlife Management Area in Union County now protects 2,500 acres with additional acreage to come. New local partner projects include the Estill County Conservation District with their purchase of the 350-acre Lily Mountain Nature Preserve and the expansion of Cove Springs Park by the city of Frankfort.

Most KHLCF-funded properties are open to the public, but a few are not due to sensitive environmental issues. Visit the KHLCF website at <http://heritageland.ky.gov> to view a list of the properties and who manages them.

The next time you go to renew your license plate, ask the county clerk to sell you a “nature plate”—a bobcat, a cardinal or a butterfly—and become part of the effort to save some of Kentucky’s most significant natural treasures!

Middlesboro Tannery: one step closer to reuse

Continued from Page 13

A few months later, a drum inventory was performed followed by a large-scale drum removal by the U.S. EPA.

During the early 2000s, with ownership of the tannery uncertain, the buildings were often vandalized and scavenged for scrap metal.

Being in constant disrepair and decay, the buildings posed a danger to anyone who entered. Additionally, many open sumps, pits and lagoons were still existent from when the business was operational.

During a site visit in November 2010, DWM's Superfund Branch discovered one end of the main building was partly demolished, resulting in debris that was filled with asbestos. Because of the proximity to local residents, EEC Secretary Len Peters declared the site an environmental emergency. More than \$1.3 million was allocated for cleanup of the site.

Shield Environmental was contracted to demolish the buildings and drain, fill and cap the sediment ponds. Demolition of the site continued throughout the summer and fall of 2011 and is now complete. As of winter, most of the lagoons had been drained and filled.

The property is especially noteworthy because it is one of the largest unused parcels of flat land in an economically challenged region. After appropriate legalities are performed, the former tannery will be available for a number of possible retail or light industrial uses bringing the land once again into productive reuse.

The Superfund Branch and the Brownfields Program are dedicated to repurposing and reusing properties throughout the state. For more information, contact the Superfund Branch at 502-564-6716 or visit their website at <http://waste.ky.gov/SFB/Pages/default.aspx>

Ag experts, legislators meet

The Kentucky Association of Conservation Districts (KACD), along with other agriculture organizations and groups, recently hosted an Agriculture Legislative Appreciation Reception at the Kentucky State University Research and Development Farm in Frankfort. The event was an opportunity for the approximately 65 legislators who attended to view exhibits and converse with representatives of KACD and sponsoring organizations on agricultural issues, programs and legislative priorities.

"It was really nice being able to talk about Kentucky's agricultural issues with not just my legislators, but legislators from all over the state," said Jeff Rice, president of KACD.

Other sponsors included the Kentucky Corn Growers Association; Kentucky Soybean Association; Kentucky Cattlemen's Association; Kentucky Pork Producers Association; Farm Credit Services of Mid-America, Kentucky Poultry Federation; Kentucky State University (KSU) School of Agriculture, Food Science and Sustainable Systems; Purchase of Agriculture Easements Board; Kentucky Dairy Development Council; Kentucky Soil and Water Conservation Commission; and USDA Natural Resources Conservation Service.

KY EXCEL member believes in business responsibility

Continued from Page 4

and hot buffet, along with environmentally friendly to-go boxes; and checkout cash register tapes are BPA free.

Arnett is pleased with the return on the investment. "It is better than break even and cheaper than not doing it, but we would make these green improvements even if they cost us."

As a result of the effort to recycle as much as possible from the store and provide neighbors with plenty of opportunities to recycle, 2 million pounds of paper, plastic, metal and glass are recycled each year from the bins.

Arnett admits there are challenges to all of the green projects. "There is illegal dumping at times, and it takes more work to source. Sometimes the product packaging costs could be inflated. There are more limited options for the green products.

But, the staff and customers love responsible businesses. Most people, when given the opportunity, will do the right thing. Don't look at it as trash, but as a waste stream collection center.

"Think about trash composting and recycling," he continues. "First, do a waste stream audit to see what you are dealing with. Then determine what you, the city and a third party (consulting or a different waste service) can do. We made a proposal to the city and Bluegrass Pride and now the city picks up compostable materials, which is a pilot program that they proved can work. It saves the city tipping fees, fuel, manpower and dumping fees. The resulting material is also rich for gardens."

Good Foods has won several awards, including the Energy Star, Super Waste

Buster from Bluegrass Pride and from Lexington-Fayette Urban County Government—two environmental awards for 2007 and 2011 and a collaborative effort in 2009.

"Stewardship comes down to how you link with other communities," says Arnett. "The staff and I want this to be the best and to do something special and responsible. The displays in the produce department have sustainable hardwood because we want the displays to honor the values of the business. We give due consideration to choices. One good thing leads to other good things. In the future, we want to install geothermal. For the projects we have already completed, we had a small capital outlay, but saved a lot of money to get the best environmental yield."

Awards

Society of American Foresters honors Chris Scott

Chris Scott recently received the 2012 Forest Technician Award for his contributions to the field of forestry. The Kentucky-Tennessee Chapter of the Society of American Foresters (SAF) selected Scott based on his demonstrated leadership and outstanding achievement in the protection and conservation of forest resources. As a forest ranger technician for the Kentucky Division of Forestry (KDF), Scott fights forest fires, inspects timber harvest operations and conducts forest fire prevention education programs. He also assists foresters with various stewardship activities including timber stand improvement, reforestation projects and assessing forest health.

Scott, an employee of KDF for more than 10 years, works in the Bluegrass District where he serves six counties including Boone, Carroll, Gallatin, Grant, Kenton and Owen. He resides in Owen County with his wife, Karen.

The SAF is the national scientific and educational organization representing the forestry profession in the U.S. Founded in 1900, SAF is the largest professional society for foresters in the world. The Kentucky-Tennessee chapter has more than 300 members and is one of 33 state and multi-state chapters representing the SAF.



Chris Scott (left) receives the 2012 Forest Technician Award from SAF member Rick Horn. KDF photo

Water treatment systems receive funding to improve operations

By Allison Fleck
Division of Water

Seven small drinking water treatment systems in Kentucky will receive financial assistance through a new program designed to improve their technical, managerial and financial capabilities to ensure production of safe drinking water in a consistent, cost-effective manner. Small systems are those that serve fewer than 10,000 customers.

The facilities selected, and the funding each will receive through the Capacity Development Assistance Program for Small Systems, include Bronston (Pulaski County) Water Association—\$3,200; Calhoun (McLean County) Water Works—\$2,000; Horse Cave (Hart County) Water Co.—\$25,000; Monroe County Water District—\$16,985; Morgan County Water District—\$18,700; Wallins (Harlan County) Water System—\$19,200 (managed by Black Mountain Utility District) and Williamsburg (Whitley County) Water Department—\$18,500.

The funding program, which is in its first year, is a cooperative venture of the Kentucky Division of Water (DOW) and the nonprofit Community Action of Kentucky (through the Rural Community Assistance Program). The two agencies worked together to identify small drinking water systems in need of capacity development assistance based on factors that are not regulated, such as equipment, training and office management.

“Many small water treatment facilities are at a disadvantage because of their budget and personnel limitations, yet they face

the same challenges as larger plants that have more money and specialized staff,” said Julie Smoak, supervisor of the DOW Drinking Water Capacity Development Section. “The goal of this funding program is to allow the smaller plants to complete critical, but nonregulatory projects they might not be able to pursue otherwise.”

John Thompson, manager of the Horse Cave Water Co., said the grant will enable the city to make critical infrastructure repairs.

“In our older communities there is little record of where pipes were placed as homes and businesses were built,” said Thompson. “This grant will allow us to map our distribution lines, which in turn will allow us to perform preventive maintenance and make repairs promptly when leaks occur.”

Funding for the Capacity Development Assistance Program for Small Systems is made possible through funds set aside by Kentucky from the Drinking Water State Revolving Fund (DWSRF) capitalization grant. The DWSRF program was established by the Safe Drinking Water Act Amendments of 1996 to provide low-interest loans to public water systems for infrastructure improvements needed to produce safe drinking water. The program emphasizes the prevention of drinking water contamination by allowing states to reserve a portion of their grants to fund activities that encourage enhanced water system management and source water protection.



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Seedling nurseries: growing trees for healthy and productive forests



Planting a persimmon tree in the backyard not only provides an eye-catching ornamental, it can provide the homeowner with tasty persimmon fruit. The common persimmon is a native tree species found in a variety of habitats from southern New England, throughout the southeastern United States, and westward to Kansas and Texas. It is one of the few trees that can grow in any type of soil and can adapt to a wide range of climates. Its thick, glossy leaves are dark green in the summer and turn shades of reddish-purple in the fall. In late spring, white fragrant flowers give the tree a stunning display. The plant is dioecious, so both male and female trees are needed to produce

the baseball-size fruit in the fall. Although it is critical to not bite into a persimmon before it ripens or falls to the ground, a ripe persimmon fruit is sweet and tasty. Persimmon fruit is often used to make cakes, puddings and beverages.

If you'd like to establish persimmon trees in your landscape or you are interested in establishing similar fruit trees, the Division of Forestry can be of assistance. Persimmon trees are one of 10 fruit producers available from the Division of Forestry's seedling nurseries. To obtain an order form, visit KDF's website at <http://forestry.ky.gov/statenurseriesandtreeeedlings/Pages/default.aspx> or call the division at 1-800-866-0555.

Photo: Virginia Tech Dept. of Forest Resources and Environmental Conservation

Just the Facts: Common Persimmon (Diospyros virginiana)

- **Growth:** The common persimmon tree is slow-growing but eventually becomes quite large for a fruit tree—from 35 to 60 feet high in Kentucky. It has an oval form, usually symmetrical and with dense foliage. The leaves are alternate, simple and 4 to 6 inches long, oval and with a rounded or narrowed base. The bark is dark brown and deeply divided into plates somewhat resembling alligator skin.
- **Sites:** Persimmon trees are found on a wide variety of soils and sites, growing best in bottomlands, but also found in dry, sterile, sandy woodlands to river bottoms to rocky hillsides.
- **Range:** The tree is common in the South Atlantic and Gulf states, and attains its largest size in the basin of the Mississippi River. Its habitat is southern, although it appears along the coast from New York to Florida; west of the Alleghenies it is found in southern Ohio and along southeastern Iowa and southern Missouri; when it reaches Louisiana, eastern Kansas and Oklahoma it becomes a mighty tree, around 115 feet high.
- **Human Uses:** Persimmon wood is extremely dense and strong, making it ideal for textile shuttles and driver golf clubs. It is also used to produce wood turnery, spindles, furniture and billiard cues. The ripe fruit is sweet with high sugar content, making it ideal for many desserts.
- **Wildlife Uses:** Skunk, raccoon, opossum, gray and fox squirrels, white-tailed deer, wild turkeys, bobwhite, crows and rabbits feed on the fruit. Deer also browse on the persimmon sprouts.
- **Tree Trivia:** A myth is that when the ovary inside a persimmon fruit is shaped like a spoon, a bad winter is expected. When it is shaped like a fork, a mild winter can be expected.