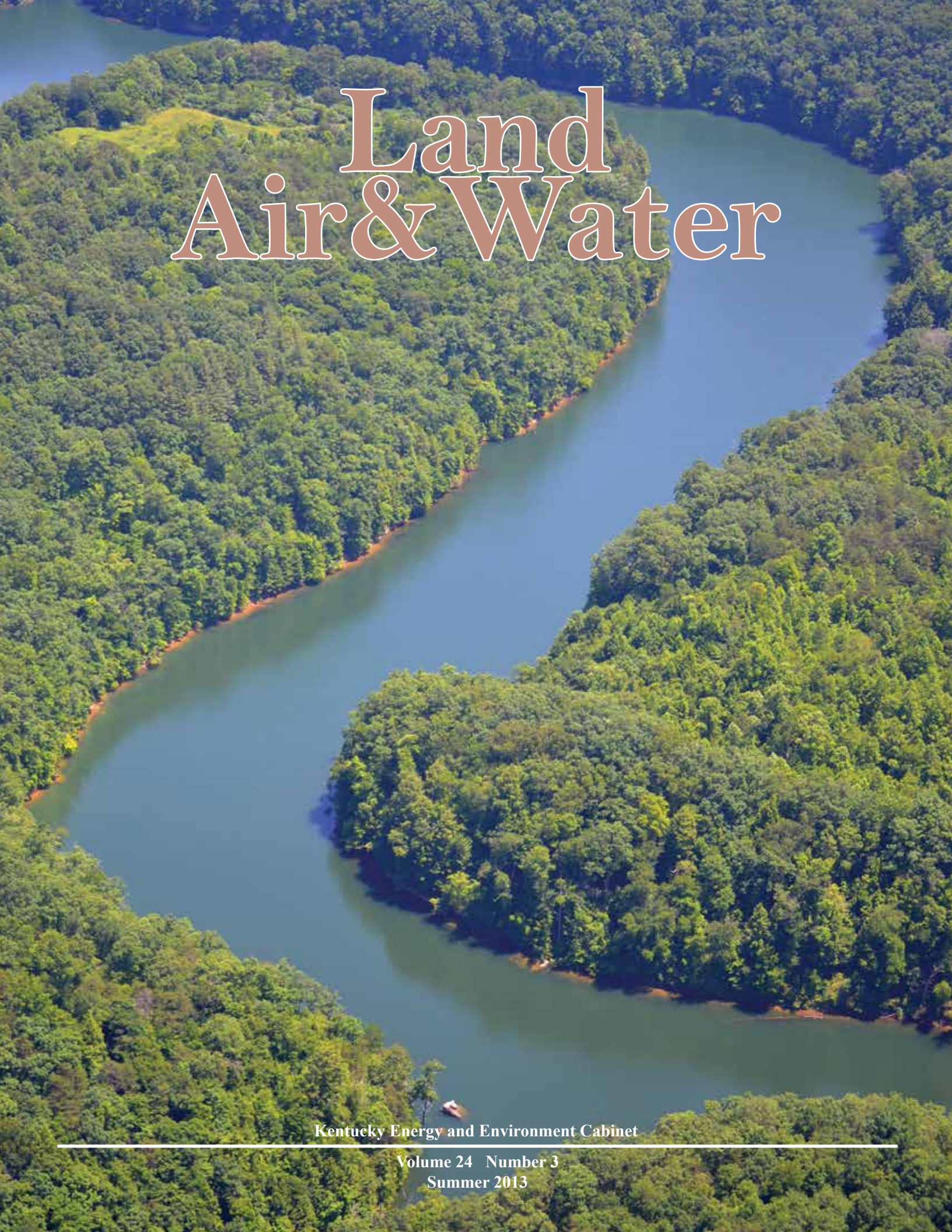

Kentucky Energy and Environment Cabinet

Volume 24 Number 3
Summer 2013

Land Air&Water

since 1988

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Land, Air & Water is published quarterly by the Energy and Environment Cabinet. Subscription to this publication is free.

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From the Secretary's Desk

I want to point out an encouraging theme in this issue of the *Land, Air & Water* magazine. Several stories in this issue highlight awards given to young people for their involvement in and contribution to environmental programs and issues. In addition to the awards pieces, we also see a group of young people who worked on an outreach campaign regarding the importance of making sure our storm sewers are protected from contamination.

I've worked with my grandsons on environmental-related merit badges for the Boy Scouts over the years, and I've witnessed just how important learning about our relation to the environment can be in shaping our attitudes and instilling important behaviors. As the environmental problems confronting us increase in complexity, our young people need to understand not only our impacts on the environment but also our ability to arrive at solutions. Understanding these complexities helps us all realize that environmental protection is more than placing restrictions on certain industrial practices, and that all human activity has an impact.

An example of the complexity of many of today's environmental problems is presented in the story on Page 9 about the Division of Water's involvement with the Gulf of Mexico Hypoxia Task Force. While the dead zone in the Gulf of Mexico is a serious problem with significant environmental and economic impacts, the multiple causes from multiple sources require the collaboration and cooperation of state and federal agencies, universities, municipalities, agricultural interests and others. It's encouraging to see such a broad array of stakeholder interests and regulatory officials working together to address a problem. This is just one example. I can think of many others. While we've made significant progress addressing air and water emissions, and in cleaning up blighted properties and illegal dumps, we have a host of other issues that demand a more nuanced approach, with an appreciation of very real tradeoffs.

And it is my hope that we can convey to today's youth that protecting our environment and enhancing the productive and aesthetic value of natural areas is more often than not a complex process with competing societal interests and economic considerations. We have many environmental education and outreach programs within the cabinet, and in other state agencies, and therefore we have the opportunity and the responsibility to help students understand the depth and complexity of these issues.

Visit Land, Air & Water online at
http://eec.ky.gov/Pages/LandAirWater.aspx

Printed on recycled paper with state and federal funds.

Land Air&Water

Summer 2013

Volume 24 • Number 3

Our Cover

Paintsville Lake in Johnson County near the tailwaters. Photographed by J. Hamon in the Department for Natural Resources.

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Printed by Post Printing
Lexington, Ky.

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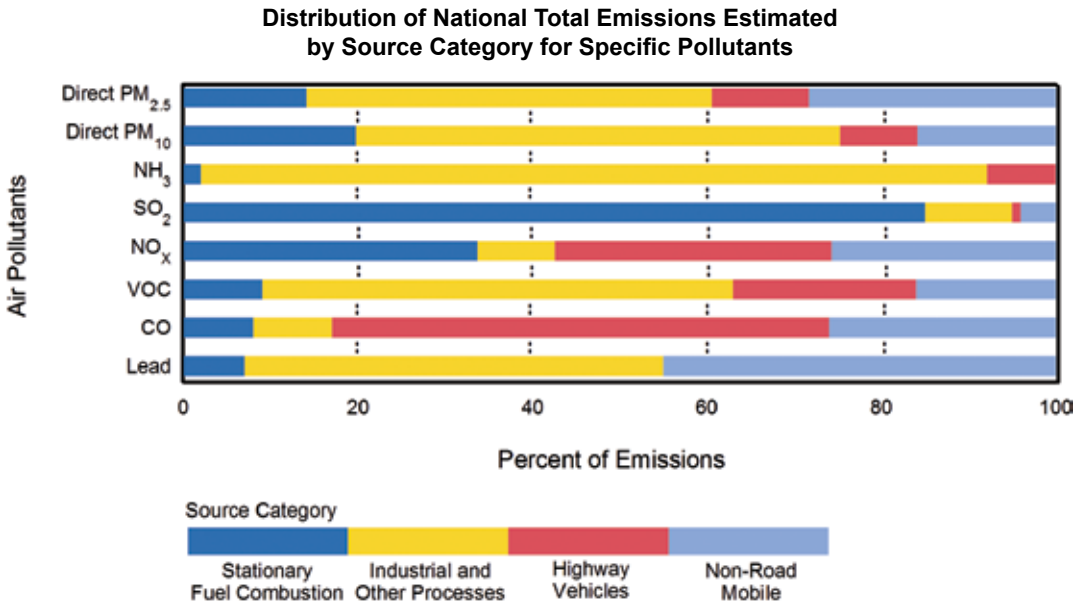

Source: EPA, "Our Nation's Air—Status and Trends through 2008

By Roberta Burnes
Division for Air Quality

Every single day, more than ***132 million miles*** are traveled on Kentucky roads. How do we protect air quality while keeping the wheels of our economy moving?

The past four decades have seen gradual but significant improvements in fuel economy, emissions control systems, and even the reformulation of the fuels we use. Each of these incremental changes has helped improve air quality and protect human health by reducing harmful emissions.

"When it comes to reducing air pollution from passenger vehicles, you can approach it in two ways," says Division for Air Quality Director John Lyons. "One is to improve the vehicle by building better engines and tighter emissions control systems. The other way is to clean up the fuel itself, by removing harmful pollutants like lead and sulfur, before they're burned."

Indeed, the U.S. Environmental Protection Agency (EPA) has used both approaches over the years with great success. Vehicles built today are far less polluting than vehicles built in the 1970s, in part due to EPA rules aimed at cleaning up emissions.

Case in point: Lead. If you're over 50, you probably remember putting leaded fuel into your gas tank. For decades, lead was blended with gasoline, primarily to boost octane levels. But burning leaded gasoline had unintended consequences—airborne lead, a potent neurotoxin—had become a serious health concern, especially for the nation's children. That's why in 1973, the EPA issued the first lead reduction standards for gasoline.

By the mid-1990s, leaded gasoline was a thing of the past.

"The elimination of lead from gas is one of the great environmental achievements of all time," said former EPA Administrator Carol Browner. "Thousands of tons of lead have been removed from the air, and blood levels of lead in our children are down 70 percent."

Tier 3 Motor Vehicle Emission and Fuel Standards

EPA's latest effort to control motor vehicle emissions addresses *both* tailpipe and fuel standards, considering the vehicle and its fuel together as an integrated system. Starting in 2017, the Tier 3 rules would set new passenger vehicle emissions standards while lowering the sulfur content of gasoline. A draft proposal of the new rules was released in March.

The proposed gasoline sulfur standard would make emission control systems more effective for both existing and new vehicles, and would allow more stringent vehicle emissions standards. Removing sulfur allows the vehicle's catalyst to work more efficiently. Lower sulfur gasoline also enables the development of lower-cost technologies to improve fuel economy and reduce greenhouse gas emissions, which in turn reduces gasoline consumption and saves consumers money.

Why are new standards being proposed? "Protecting public health is goal No. 1," says Lyons. "Passenger vehicles are major contributors to air pollution, especially in urban areas." Indeed, more than 3.5 million passenger vehicles were registered in Kentucky in 2010, according to the U.S. Department of Transportation. "From an air quality standpoint, making cleaner vehicles and cleaner fuel just makes sense," says Lyons.

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Recycling center improves efficiency with equipment upgrades

By Lynn True
Division of Waste Management

The Kentucky Government Recycling Section (KGRS) recently invested $326,000 to upgrade equipment at its paper-processing facility in Frankfort. The facility handles mixed office paper, white paper, newsprint and corrugated cardboard from state agencies and state universities across the Commonwealth. The service not only provides cost savings for shredding confidential documents, it also ensures benefits such as energy savings inherent to recycling.

"KGRS is a revenue-generating program and part of the proceeds from the sale of recycled materials allowed us to purchase the new equipment," said Brian Bentley, KGRS supervisor. "Our equipment was outdated, and we spent countless hours repairing various components. The new equipment, which includes a conveyor-grinder-baler system, will go a long way in improving the efficiency of our operation."

In 1978, Kentucky state government was mandated to recycle office paper and as a result, the State Government Recycling Program was created in the early 1980s. The program, administered by the Department for Environmental Protection's Division of Waste Management, has faced challenges of faulty equipment and understaffing, but the program has always managed to provide the required recycling services to state offices.

"In its 30-year history, the recycling program has become an integral part of working for state government," said Gary Logsdon, Recycling and Local Assistance branch manager. "We strive to improve our program and facility in any way possible. Now that we have resolved some of the equipment issues, we'd like to build up our staff and provide more promotional opportunities."

KGRS is comprised of seven full-time employees and currently utilizes two Governmental Service Program workers. KGRS staff not only provide weekly collection and confidential document destruction to state agencies within Frankfort, they also work in the recycling facility sorting and placing materials in appropriate collection containers where they are shredded, baled and loaded for sale to a paper recycling company. The staff and facility also accommodate materials from outside the Frankfort service area.

"The main advantage of the program is that the money generated by KGRS goes to support the operation rather than using taxpayer dollars," said Bentley. Additionally, this program saves the state money by avoiding disposal costs and eliminating the need for outside shredding services."

In 2012, KGRS recycled approximately 2,784,291 pounds of paper and generated $308,687 in proceeds from the sale of recyclables.

Besides being a legislative requirement, KGRS more than justifies its need for resources and personnel. The program will no doubt continue to meet the current demands of document shredding and paper recycling and will likely increase the volume of paper to be recycled as well.

"Currently, KGRS provides training and a packet of recycling information to all new employees in the Labor, Energy and Environment, and Public Protection cabinets," said Bentley. "We hope to expand the training to other cabinets so that all state employees become educated about the need and logistics of recycling and about how each individual can become involved in our program."

"As more agencies realize the financial and environmental benefits of recycling, KGRS will expand its services," said Logsdon. "Fortunately, new equipment and revived support are underway."

For more information about KGRS, visit http://waste.ky.gov/RLA/recycling/Pages/OfficePaperRecycling.aspx.

TOP: ***A panorama view of the new equipment at KGRS (left to right) the tipper, conveyor, grinder and baler.*** Photo by Melinda Meredith.
ABOVE: ***A bale of shredded white office paper.*** Photo by Gary Logsdon

New provisions encourage property reuse

Kuhlman Electric becomes first property purchased under liability agreement with state

By Virginia Lewis
Division of Waste Management

A new sign will be going up at the former Kuhlman Electric building in Versailles, Ky. The 27-acre site was recently purchased by Tim and Anna Cambron, co-owners of Ruggles Sign Co., as the new location for their successful Kentucky family-owned and operated business.

This is a monumental "first" in the state—this is the first property to change hands under the new provisions of House Bill 465, a bill signed into Kentucky law on April 11, 2012, that encourages property redevelopment by allowing the state to work with prospective buyers to remove environmental liability obstacles and to increase certainty regarding future liability. The new law is found in Kentucky Revised Statute 224.01-415 with some additional effect on KRS 224.60-138(1) for underground storage tank cleanups.

Photo by Virginia Lewis

The Cambrons and their consultant worked together with the Kentucky Division of Waste Management to complete the purchase under the new provisions.

"My experience overall was very positive," said Tim Cambron. He said meeting with their consultant and the state helped him understand the process better and that the state was very timely in working with them in giving feedback and direction.

"We're very proud to say that this legislation is something that the Kentucky Department for Environmental Protection worked to get introduced, shaped and passed," said Shawn Cecil of the Department for Environmental Protection Commissioner's Office. "We want to be proactive in looking for ways to encourage property reuse and all the good that comes with that. It's a bit of a departure from the perception that environmental regulation means always curtailing private industry and economic opportunity. In this case, we are looking for ways to help bring industry and jobs to the Commonwealth."

Under the new provisions, existing cleanup standards and corrective action requirements remain the same for those responsible. The difference, however, is that innocent parties can purchase properties that have environmental concerns and use or redevelop them with a new 'peace of mind' by having documented reassurance from the state that parties responsible for any environmental issues will remain responsible.

To reap the benefits and liability assurances, necessary steps must be completed prior to and after the sale. In brief, the purchaser must work with the state to ensure they meet eligibility requirements, the state must agree that the proposed land use is appropriate, and the purchaser must provide access if cleanup or monitoring actions are needed. If the conditions are met, the buyer will not be liable for investigating or correcting historical releases.

Although the administrative regulations are still in development, prospective purchasers can participate now. The first step would be to contact the state as soon as intentions to purchase are known. It is anticipated that an interested buyer and their consultant will submit and certify a package that documents the following conditions have been met:

- Completed Phase I Environmental Site Assessment.
- Certification that the necessary conditions were met in the purchase.
- A plan that demonstrates the owner will ensure that future use of the property will not put human health and the environment at risk.
- Comply with need for access to allow those responsible or the Commonwealth to address any remaining contamination.

"The provisions of House Bill 465 rely upon a Property Management Plan, which serves as an agreement between the buyer and the division of what constitutes appropriate care, providing assurance that, if the plan is followed, the buyer will not have liability for cleanup of releases that occurred prior to purchase. The Property Management Plan may be amended to reflect changes in property use over time. In short, through the Property Management Plan the Commonwealth is asking that redevelopers

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Program teaches Kentuckians about energy awareness

By Eileen Hardy
Department for Energy Development and Independence

Kentucky's Cooperative Extension Service has long been recognized as a valuable community resource, providing educational programs that reflect the ever-changing situations in which Kentuckians live and work. Tough economic times and uncertain energy costs are encouraging consumers to spend wisely. One way to help make informed choices in everyday living is through understanding the role energy efficiency plays in managing budgets, improving health, and preserving our environment's natural resources.

Capitalizing on their existing partnership, the Kentucky's Energy and Environment Cabinet's (EEC) Department for Energy Development and Independence (DEDI) and the University of Kentucky County Extension Service (UK CES) launched the Energy Efficiency Awareness and Action program (EEAA). Through the university's expertise and the grassroots resources of County Extension Services, EEAA has unlocked new opportunities to incorporate educational materials and technical assistance on energy efficiency into programs for youth and adults.

Beverly Miller Photo by UK CES

EEAA is a national pilot project funded by the EEC through a competitive grant awarded by the U. S. Department of Energy. Kentucky was one of three states to receive a grant.

Beverly Miller, an extension associate with UK's College of Agriculture, Food and Environment, Department of Biosystems and Agricultural Engineering, began working with agents in all 120 Kentucky counties last fall, and has provided agricultural/natural resource, family and consumer science and 4-H youth agents with new tools to understand and evaluate energy usage for both homeowners and small business owners.

The EEAA program is a comprehensive, hands-on educational package teaching homeowners and small business owners to successfully use online self-assessment tools to determine a building's energy performance. Miller explained there are multiple aspects to building energy management.

"Not only does it save money through reduced usage, people are also enhancing the comfort of their home—making it healthier, too. And of course, using less energy makes a positive impact on the environment by reducing our greenhouse gases."

Integral to the program's success are the extension agents across the Commonwealth. In Fayette County, family consumer science extension agent Diana Doggett describes her role as a great collaborator, seizing opportunities to help families solve problems and make informed decisions to improve their lives.

"When I connect people with the right information and they come back and tell me how it's made a difference in their life, it is so rewarding to me," says Doggett.

She further explains that families turn to an extension agent with a variety of needs. "As an educator, I am always doing my homework. When I saw the EEAA training offered early this year, I jumped at the chance to learn more. I now have research-based resources to share, and in addition, I have had an opportunity to learn first-hand about our office's energy usage. As part of the training exercises, I completed a building self-assessment using the Portfolio Energy Manager tool. The results were surprising and clearly showed there was room for improvement," Doggett said.

To identify where improvements could be made, Doggett took advantage of a free commercial energy audit program offered through her energy provider. A trained energy specialist conducted an onsite inspection of Fayette County's 20,000-square-foot extension building, giving special attention to lighting, heating and cooling equipment, along with other variables that affect energy usage and efficiency. The analysis identified areas that offered the most potential for energy savings.

"The audit showed by installing high-efficiency lighting, we could realize an

Continued on Page 8

Conducting an Energy Assessment

The residential component, *Living Better through Home Energy Management*, answers essential home energy use questions and teaches agents how to conduct a home self-assessment with the use of the Kentucky Home Performance energy education tool. For more information, visit http://www.bae.uky.edu/energy/residential

Control Overhead through Building Energy Management utilizes the ENERGY STAR® Portfolio Manager, a free online tool that generates a benchmarked energy ranking for a building and helps track your building's energy use over time. Visit http://jokko.bae.uky.edu/ext/ Select "Energy Programs" on the left (residential or commercial).

Brownfield properties can provide hidden benefits to a new developer or business looking to relocate, offering reduced construction costs with existing infrastructure.

Brewery revitalizes building, Lexington neighborhood

By Mary Jo Harrod
Division of Compliance Assistance

The West Sixth Brewing Co. in Lexington is a craft brewery, founded by Joe Kuosman, Ben Self, Robin Sither and Brady Barlow, located in the old Rainbo Bread Co. building. The business is the first Kentucky brewery to can its beer and has the ability to produce 180 barrels per month. The redeveloped two-story building, which also has a basement and dates back to 1880, is now called The Bread Box and is located in the historic Northside Neighborhood.

Besides the brewery, tap room and beer garden in the front corner of The Bread Box, the 90,000-square-foot structure will also be home to The Broke Spoke Community Bike Shop, Cricket Press, Roller Derby's Roller Girls and FoodChain, a nonprofit focused on urban indoor food farming production and education that includes growing vegetables and raising tilapia in a vertical farm.

Purchased in August 2011, the historic building was certified for brownfield zoning for adaptive reuse by the Kentucky Brownfield Redevelopment Program. As a brownfield property, it had been abandoned due to perceived environmental contamination. It was the first single-use building in Lexington to meet four of the seven criteria for this zoning designation, which makes it available for retail, office or residential use and increases its value.

When the owners were searching for a location, they knew they wanted their business to be in a neighborhood near downtown and be environmentally friendly and sustainable. By choosing a brownfield, they realized it would be less expensive to locate in an existing structure, but they also knew there would be unknown conditions to face, especially since the building had been vacant for many years.

"All the windows needed steel lintels," says Self. "Part of the floor was on a concrete slab, while there was a crawl space under the rest of it. All of the copper had been stolen. The windows were blocked in and had to be removed. But the building has tons of architectural character with several features, including its barreled roof. If you are considering purchasing a brownfield, go for it, but expect surprises and challenges."

The owners were attracted to the building as there were lots of original parts that could be

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"The neighbors are happy because the corner went from being blighted to becoming a vibrant, positive influence...We will always strive to protect our environment even if it costs us more to do so."

Ben Self, co-founder of West Sixth Brewing Co.

TOP: ***Artists' studios within The Bread Box.***
ABOVE: ***West Sixth Brewing Co. bar and stools made of wood from the old loading dock and the University of Kentucky Memorial Coliseum.***
Photos by Mary Jo Harrod

Storm drain stenciling by Lansdowne students in Lexington as part of an educational project by Bluegrass PRIDE. Photo by Bluegrass PRIDE

Members EXCEL at projects that provide environmental benefits to Kentucky

By Kenya Stump
Division of Compliance Assistance

KY EXCEL members continued to improve the state's environmental future with their volunteer efforts last year that resulted in more than 3 million pounds of recycled waste, 6,000 planted trees and more than 14,000 educated adults and students learning more about the importance of making a "green" commitment.

KY EXCEL, the Commonwealth's environmental leadership program, continues to grow, and member projects are providing tremendous benefits to the citizens of Kentucky. The Kentucky Division of Compliance Assistance (DCA), which oversees KY EXCEL, has significantly enhanced the program by providing member chats, webinars and case studies to spotlight member accomplishments, as well as sector-specific projects.

In 2012, 15 new members joined KY EXCEL and were provided with eight beneficial training opportunities on hazardous waste management, electronic reporting via NetDMR, annual compliance certification, an introduction to permitting, area source boiler rule, the potential to emit

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KY EXCEL Project Results

Recycled
- 71,675 pounds of cardboard
- 41,699 pounds of paper
- 38,674 pounds of plastic
- 216,530 pounds of e-scrap
- 3,169,718 pounds of waste
- 2,600 pounds of hazardous waste

Saved
- 1,253,980 Kwh of electricity
- 2,063,083 gallons of water
- 123,000 gallons of gasoline
- Over $3 million through projects

Prevented
- 7,440,000 pounds of CO_2
- 325,006 pounds of VOC
- 59,200,000 pounds of greenhouse gases

Educated
- 4,274 students
- 10,675 adults

Planted
- 6,310 trees
- 84 acres of native grasses

Springs uncovered at orphaned Jessamine County landfill

By Tammi Hudson
Division of Waste Management

The use of Kentucky PRIDE fund monies by the Kentucky Division of Waste Management (DWM) to close an orphaned Jessamine County landfill resulted in a surprising find. The site, first opened in 1965, has naturally occurring springs under it, which could lead to off-site environmental problems.

The 100-acre site was initially permitted by William Glover by the Jessamine County Board of Health with the goal of serving the landfill needs of Nicholasville, Wilmore, Asbury College, Asbury Seminary, the county school system as well as everyone living in Jessamine County. Landfill operations ceased in 1983 after having been leased by Glover to a private company six years earlier.

LEFT: ***One of 33 springs found within a one-mile radius of the Glover landfill.***

BELOW: ***Contractors spent two days digging through trash and rock to uncover this spring.*** Photos by DWM

During a site visit of the landfill in 1985, an inspector for the Kentucky Department for Environmental Protection (KDEP) found that uncontrolled dumping had occurred. Leaking drums were piled in a trench and one drum was labeled 1,1,1-tricholoethane, which can cause human health problems like hypotension, motor skill impairment, impaired balance, cardiac arrhythmia and respiratory arrest. KDEP removed the drums and other potentially hazardous wastes from the landfill, and it was abandoned at completion of the remedial actions.

In 2002, the landfill was placed on the priority list for assessment and closure because the landfill produced large quantities of leachate. Leachate, or water moving throught the waste, can impact the environment as it removes soluable, suspended or miscible materials from the waste. Before the landfill could be properly closed, DWM had to determine if the source of water causing the leachate was surface water entering through the landfill cap or groundwater entering the landfill through springs.

Tetra Tech Inc., DWM's consultant on the project, conducted a survey within a one-mile radius of the landfill and found 33 naturally occurring springs. Subsequently, geologic maps of Glover's farm were also studied to locate areas within the footprint of the landfill that were the most probable for groundwater to emerge between rock layers.

Since the eastern portion of the landfill had been a valley before it was filled with trash it became the targeted study area. The area had features indicating spring development, such as rock formations with intermittent mud smears and sinkholes within 400 feet of the landfill.

Viewing an aerial photograph dated 1950, DWM personnel used a mirrored stereoscope to identify a rock ledge exposed at the head of the valley and a flow path of water in the valley. The photo was then superimposed onto a USGS topographic map, allowing DWM personnel to interpret latitude and longitude of the potential spring location.

Perdue Environmental Contracting Co. Inc. (PECCO), contractor for the project, developed an excavation plan and, after two days of digging through trash and rock, uncovered the hidden spring 26 feet below the surface. The spring fed about 15 gallons of water per minute into the landfill, equating to more than 20,000 gallons of water per day. Through further excavation, PECCO diverted the spring

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Kentucky's NetDMR efforts recognized nationally

By Kenya Stump
Division of Compliance Assistance

An essential part of the Division of Water's (DOW) Kentucky Pollutant Discharge Elimination System (KPDES) permit for wastewater discharge is the Discharge Monitoring Report or DMR. DMRs are a self-reporting tool that helps determine compliance with permit conditions and assess the quality of the wastewater discharge. To meet the U.S. Environmental Protection Agency's (EPA) deadline for electronic reporting of all DMRs by early 2014, the DOW and the Division of Compliance Assistance collaborated to develop a combination of online tools, classroom training and working through trade associations to enable a smooth transition to the electronic system, known as NetDMR.

Those efforts have been successful, resulting in 230 facilities submitting DMRs via the NetDMR system this year through March 31, and 935 total DMRs submitted from Jan. 1 through Feb. 28. "Kentucky ranked second nationally in electronic submittals for the month of March and third nationally for submittals during the first quarter," said Aaron Keatley, deputy commissioner of the Department for Environmental Protection. "That's a testament to the dedication of both divisions and the willingness of these Kentucky facilities to comply with the upcoming EPA deadline."

DMR data is housed in the EPA's Integrated Compliance Information System (ICIS) and available to the public via the EPA's Enforcement and Compliance History Online (ECHO). The Division of Water anticipates having the majority of KPDES facilities transitioned by mid-2014. A combination of direct mail and six classroom training events have resulted in approximately 15 percent of eligible entities being transitioned to NetDMR.

The transition to NetDMR will allow for reduced paperwork, improved data quality and allow for more timely data processing and increased data accessibility. In all, it allows for the DOW and permitted facilities to become more efficient at DMR submittals and reviews. For many facilities, it may actually decrease the probability of being cited for minor data errors seen on traditional paper DMRs.

To continue the successful implementation of NetDMR, facilities should start talking to management and other entities about the transition to NetDMR. Facilities can check their transition date at https://dep.gateway.ky.gov/eSearch/Search_Required_NetDMR.aspx. Any paper DMRs submitted after the DMR requirement date will not be accepted.

For more information on NetDMR, visit http://water.ky.gov/permitting/Pages/netDMRInformation.aspx or contact DCA at envhelp@ky.gov.

New provisions encourage property reuse

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take steps to manage any additional exposure caused by their activities," said Cecil.

For the Commonwealth and its cities and counties, these new provisions improve the value of the property, get fallow properties back onto tax rolls, have the potential to add jobs, and ensure the protective use of the property through an attentive property owner.

"We just feel it's a great building. It's a great location. It's utilizing something that's already there rather than building from scratch," Cambron told The Woodford Sun. He said the business presently employees about 70 people and over time, 10 to 20 jobs may be added.

If you are considering the purchase of a property under the new provisions of House Bill 465, or would like more information, email Shawn.Cecil@ky.gov or call 502-564-6716, ext. 4754.

Program teaches Kentuckians about energy awareness

Continued from Page 4

annual savings of $6,500," says Doggett. "When I presented this to our board, they voted unanimously to replace our 280 lamps with energy-efficient lighting. This building serves as a community conference center and gets a lot of use. I am still doing my homework and talking with contractors about options for further energy efficiency investments."

As the program continues throughout 2013, EEAA will create a new educational network of informed agents and consumers. Moreover, by training all extension staff and community members, their new-found knowledge and experience can have long-lasting impacts on future decisions for families and commercial businesses.

County Extension Service provides a unique service that involves getting to know people, understanding their needs and providing the right resource, all free of charge.

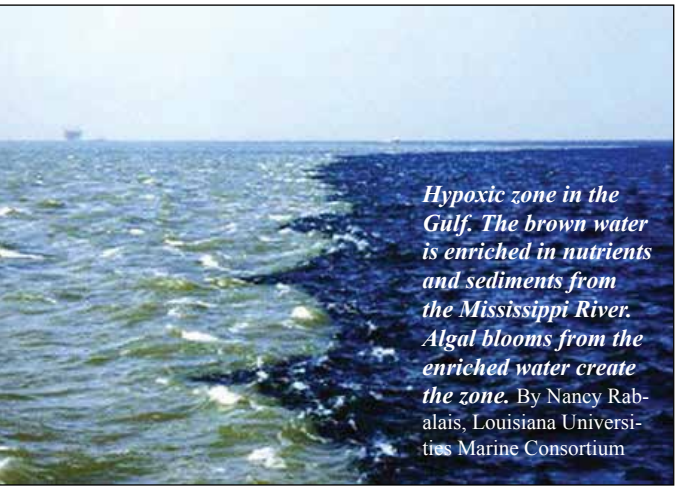
For more information about the EEAA program, email Greg.Guess@ky.gov at Kentucky DEDI; email Beverly.Miller@uky.edu; visit www.bae.uky.edu or call your local cooperative extension office.

Dead Zone

Task Force seeks solution to nutrient pollution in the Gulf of Mexico

By Allison Fleck
Division of Water

Agencies working to reduce oxygen depletion in the Gulf of Mexico caused by nutrient pollution in the Mississippi River say that partnerships, funding and community involvement are key elements in the effort to develop and implement a coordinated strategy to reduce the volume of nutrients entering the Gulf via the river.



Hypoxic zone in the Gulf. The brown water is enriched in nutrients and sediments from the Mississippi River. Algal blooms from the enriched water create the zone. By Nancy Rabalais, Louisiana Universities Marine Consortium

In April, the Kentucky Division of Water and the Soil and Water Conservation Society hosted the biannual meeting of the Mississippi River/Gulf of Mexico Watershed Nutrient Hypoxia Task Force in Louisville. Membership on the Hypoxia Task Force includes five federal and 12 state agencies with responsibilities overseeing activities in the Mississippi River and its basin and in the Gulf. Kentucky became a member in 2010. The task force provides guidance and support for organizations working on nutrient reduction. The meetings provide an opportunity for members to share ideas, report achievements and coordinate future plans.

What is hypoxia?

Hypoxia means "low oxygen" and is primarily a problem for estuaries and coastal waters. It can be caused by a variety of factors, including excess nutrients and waterbody stratification due to saline or temperature gradients.

Many of us think of nutrients as good things. After all, humans and animals eat food to obtain vital nutrients for growth and development. In the context of water, nutrients refer primarily to nitrogen and phosphorus, but in both cases it is possible to get too much of a good thing. The nutrient increase in the Gulf of Mexico has been attributed to several sources:

- Over-application of fertilizers on agricultural fields, golf courses and suburban lawns.
- Erosion of soil full of nutrients.
- Discharges from sewage treatment plants.
- Deposition of atmospheric nitrogen.

Within the past 50 years, the over-enrichment of water by nutrients has emerged as one of the leading causes of water quality impairment. When too many of these nutrients run off into waterways, they upset the natural balance of aquatic ecosystems and cause immense algal blooms that overrun waterways and block sunlight. As dead algae decompose, oxygen is consumed in the process, resulting in low levels of oxygen in the water. When the concentration of dissolved oxygen decreases to a level that can no longer support living aquatic organisms, hypoxic areas, or "dead zones," occur.

Why are dead zones worse in summer?

The hypoxic zone in the Gulf of Mexico forms every summer as a result of spring rains washing excessive nutrients into the Mississippi River, which then carries them into the Gulf. Because the nutrient-laden freshwater is less dense and remains above the more dense saline gulf water—and the freshwater being warmer—stratification of the water results, preventing the mixing of oxygen-rich surface water with oxygen-poor water on the bottom of the Gulf. Without mixing, oxygen in the bottom water is limited and the hypoxic condition remains.

This map shows the watersheds that contribute to nutrient loading in the Gulf by way of the Mississippi River. Inside Climate News image

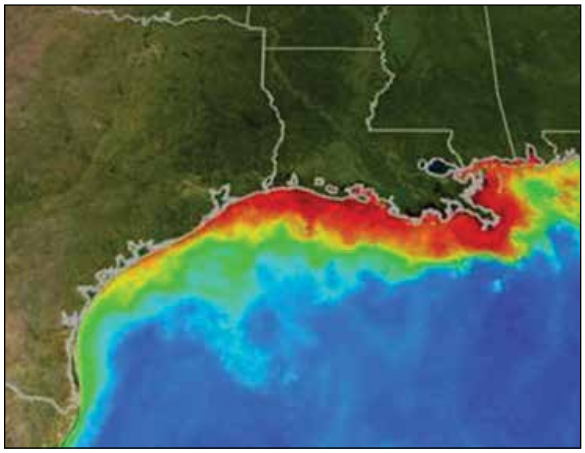
National Oceanic and Atmospheric Administration (NOAA) scientists found the size of the 2012 dead zone to be the fourth smallest since mapping of the annual hypoxic began in 1985. At that time it was roughly the size of Delaware at 2,889 square miles. The smaller size was attributed to prevailing and persistent drought conditions. The largest dead zone yet recorded was in 2002 and measured 8,484 square miles.

This summer, NOAA is predicting the dead zone will be larger than average due to heavy spring rains, late snows, above-normal river levels and forecasts for continued above-normal precipitation in the Mississippi Basin.

Why is it important to reduce dead zones?

Direct effects of hypoxia include fish kills, which deplete valuable fisheries and disrupt ecosystems. Mobile animals, such as adult fish, can typically move to waters with more oxygen during hypoxic events, while less mobile or immobile animals, such as oysters, crabs and shrimp often die.

Continued on next page



NOAA data was used to create this image of the Mississippi River dead zone in the Gulf of Mexico. Reds and oranges represent low oxygen concentrations.
NOAA image

Hypoxia also affects the ability of young fish or shellfish to find the food and habitat necessary to become adults. As a result, fish and shellfish stocks may be reduced because fewer young reach adulthood, and species that rely on those fish for food may also be affected.

Nutrient pollution is devastating to communities that depend on ecosystem services like tourism, recreation and fisheries. For people living alongside these waters, the decaying smell and the toxins released by the algae can irritate eyes, throats and skin.

What is being done to solve the problem?

Hypoxia Task Force's 2008 Action Plan describes a national strategy to reduce, mitigate and control hypoxia in the northern Gulf of Mexico. The plan stresses voluntary actions, use of existing programs, partnerships, private funding sources and education and outreach. During the April meeting, several members reported on progress being made by their agencies and states.

• Partnerships

Nancy Stoner, the Environmental Protection Agency's (EPA) acting assistant administrator for water, said federal agencies are assisting states with water quality monitoring, outreach and data analysis. For example, the U.S. Department of Agriculture sponsors the Healthy Water Initiative while NOAA modeling helps provide the basis for tracking the size and extent of the hypoxic area.

The Agribusiness Association of Iowa supported the state's 2012 Nutrient Reduction Strategy and encouraged Iowans, policy makers, farms, business and academia to embrace the plan's implementation.

Water quality trading through partners is also an important tool to reduce the nutrient load in the Ohio River Basin. It allows facilities with high pollution control costs to buy reduction credits from entities with lower costs, such as farmers who implement conservation practices on their land. Kentucky, Indiana and Ohio recently signed such an agreement with the Electric Power Research Institute.

Land grant universities are essential partners as well, said Dr. David Shaw, an agriculture scientist at Mississippi State University. Shaw said academic institutions are well positioned to facilitate discussions among farmers, crop consultants and product suppliers.

• Funding

With federal funding for nutrient reduction remaining tight, private sources of funding are becoming more essential. Bill Herz with the Fertilizer Institute in Iowa said the nonprofit Foundation for Agronomic Research helps fund projects to improve and sustain agriculture while protecting and enhancing the environment. The institute sponsors the 4R Nutrient Stewardship program, which encourages farmers to use "the right fertilizer source, at the right rate, at the right time and in the right place."

In Illinois, the Nutrient Research & Education Council is funded by private money through a $.75 per ton assessment on each ton of fertilizer sold in the state to fund projects that promote nutrient stewardship and enhance communication.

• Communication

Tom Blewitt with the University of Wisconsin Extension Service said it is important to communicate with

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On the Home Front

Hypoxia Task Force members toured the Floyd's Fork water quality treatment plant to learn about Kentucky's efforts to reduce nutrient loading to local waterways that eventually reach the Gulf. The plant treats wastewater to tertiary-level standards, meaning at least 90 percent of its major pollutants are removed before being discharged into the Floyds Fork Creek, a tributary to the Salt River, which empties into the Ohio River, traveling into the Mississippi River and finally into the Gulf of Mexico.

At left, members look at the ultra-violet emission panels used to disinfect wastewater at the plant.

Photo by Allison Fleck

Members EXCEL at projects that provide environmental benefits to Kentucky *Continued from Page 6*

calculations, fugitive dust/open burning related to air quality and lighting retrofits as a result of legislative changes and regulations. These training events ensure that KY EXCEL members are well-informed and working to improve the operations at their facilities.

As a way to highlight KY EXCEL member projects in 2012, DCA conducted interviews with five members and published case studies showcasing their project's economic value, challenges faced and suggestions offered for success and benefits and stewardship to surrounding communities.

These lead-by-example projects performed by Kentucky American Water, Keeneland, Jim Beam—Clermont, Bluegrass PRIDE and Duke Energy—East Bend Station are highlighted under "case studies" on DCA's website at http://dca.ky.gov/Pages/ResourceDocuments.aspx and on the DEP Blog and national and local news outlets, such as the *Environmental News Network*, *Brownfield Renewal* and *KyForward*.

ABOVE: ***An employee at Heaven Hill Distilleries recycles cardboard in the plant.***
Photo by Heaven Hill Distilleries

New KY EXCEL members for 2013

Setting a positive example demonstrates that protecting the environment is important to these KY EXCEL members that go above and beyond their regulatory obligations. To become a member, call 1-800-926-8111 or visit www.dca.ky.gov/kyexcel

- North American Stainless—Ghent - recently upgraded membership from leader level to master level
- National Office Furniture—Danville (Partner level)
- Denise Anderson—Warren County (Advocate level)
- Alcan Primary Products Corp.—Henderson (Partner level)

"Being environmentally conscious is a mindset. We are stewards of the world we live in," said Jim Noe, plant manager at Jim Beam's Distillery, Clermont/Booker Noe Operations. The Jim Beam Distillery constructed its new visitor's center to include geothermal heating and cooling, energy-efficient LED lighting and many water-reduction features, which earned it a LEED (Leadership in Energy and Environmental Design) Gold Certification.

As a KY EXCEL project, Bluegrass PRIDE offered workshops to help teachers educate their students in central Kentucky about coal energy and various alternatives. After visiting a coal mine, a school outfitted with a geothermal system and learning about solar power, teachers were more aware of the sources of energy used in Kentucky.

"We try to help teachers to teach by using real-life examples, which makes it more relevant," said Bluegrass PRIDE Executive Director Amy Sohner. "We target everyone, including people who do not call themselves environmentalists. We serve a niche that no one else serves."

The KY EXCEL program also participated in two Sustainable Spirits summits last year at Heaven Hill Distilleries and Woodford Reserve. These summits provided a venue to share best practices and discuss regulatory issues specific to distilleries and breweries. As a result of these meetings, a compilation of best management practices will be developed and made available at select distilleries on the Bourbon Trail.

KY EXCEL members continue to demonstrate impressive results benefiting local communities and Kentucky's environment. KY EXCEL members completed 315 projects and volunteered 216,144 hours, all above and beyond any regulatory commitment. The KY EXCEL program demonstrates that one small action can make a difference when multiplied statewide.

Dead Zone

Continued from Page 10

stakeholders in order to leverage resources. "Transforming communities is a critical way to think about how we do our extension work," he said. "People who have ownership—who have a stake in what's going on—become part of finding a solution. We have to work together to get that message out."

Shaw agreed. "It all boils down to communication. There needs to be a dialogue in such a way that the research is relevant and can be effectively utilized," he said.

Dr. M. Scott Smith, dean for the University of Kentucky School of Agriculture and director of the Kentucky Cooperative Extension Service and Agricultural Experiment Station, said the cooperative extension service system represents a valuable communication resource, but that the public has to be persuaded of the importance of the Gulf issue. "The [Kentucky] cooperative extension service has an essential infrastructure that is incredibly well supported by counties and local governments," Smith said. "But we're a long way from the Gulf of Mexico and there are a lot of other issues. I'm not sure our population would embrace talk about the Gulf of Mexico."

Kentucky activities

Peter Goodmann, assistant director of the Kentucky Division of Water, said that while the division is working on a draft nutrient reduction strategy for the state, many of the actions needed to reduce nitrogen loads are already in place in Kentucky—and other states—within existing efforts to restore water quality.

"The tools provided by the Clean Water Act, the last several farm bills, state cost-share programs, wetlands projects, nonpoint source pollution programs and wastewater permits all are geared to reduce pollution and improve water quality," Goodmann said. "We also work closely with the Kentucky Agriculture Water Quality Authority to promote the adoption of best management practices to protect water quality."

Goodmann said Kentucky also needs to take a new look at how watersheds are prioritized.

"Since the watershed framework was incorporated in 1996, we've learned a lot more about repairing damaged watersheds," said Goodmann. "It's time to revisit how we prioritize watersheds for improvement, but flexibility remains an important element since every watershed is unique."

Conclusion

Certainly the goal of the Hypoxia Task Force is to bring a variety of interests together working toward a common goal of improving the health of the Gulf of Mexico—a sentiment best expressed by Iowa Agriculture Secretary Bill Northey.

"The challenge is to make changes that can make a difference," he said. "In Iowa, we have a plan for point and nonpoint sources [of pollution]. We've moved past 'who's at fault' and moved on to 'let's all work together to make improvements.' That's an important place to be: moving forward."

Gruzesky receives award

Kentucky Division of Water Director Sandy Gruzesky was recently selected as the recipient of the 2013 Lyle Sendlein Award for Outstanding Contributions in Water Resource Practice presented by the Kentucky Water Resources Research Institute (KWRRI). Gruzesky has held the position of director since 2008 and has been with the division for 19 years.

Sandy Gruzesky receives recognition from Dr. Lindell Ormsbee, director of KWRRI.
KWRRI photo

"It is a great honor to be recognized by your peers for your work toward preserving the waters of the Commonwealth," said Gruzesky, "but I share this award with my entire staff at the Division of Water for their dedication and hard work."

The award is named after Dr. Lyle Sendlein, who served as director of the KWRRI from 1992 to 1998.

Springs uncovered at orphaned Jessamine County landfill

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water to a rock-lined trench running parallel to the parameter of the landfill.

"Closure of this landfill is perhaps the best example of two branches within the Division of Waste Management working together for a common goal," said Tony Hatton, director of the Division of Waste Management. "The Superfund Branch initially addressed the worst of the hazardous waste buried at the site, and the Solid Waste Branch is finishing the job by intercepting natually occurring groundwater and preventing further contamination from decades of trash disposal."

Closure activities at the Glover landfill are still ongoing, and construction is expected to be completed by September 2013. When the landfill is properly closed, the footprint of waste will be reduced from 37 acres to 17 acres.

Earth Day 2013 celebration

On April 22, the Energy and Environment Cabinet (EEC) and the Kentucky Environmental Education Council teamed up with First Lady Jane Beshear to celebrate Earth Day and to educate students and citizens about the environment and the value of energy efficiency.

The First Lady kicked off the celebrations early in the day by plugging in one of four new Chevy Volts at a ribbon-cutting ceremony at the Department for Environmental Protection (DEP).

"The new vehicles get more miles per gallon and produce fewer tailpipe emissions than any conventional vehicle in the state fleet," said Mrs. Beshear.

ABOVE: ***First Lady Jane Beshear connects a hybrid Chevy Volt to a charging station that will be used by state workers on official business on behalf of the Commonwealth.***
Photo by Cindy Schafer

RIGHT: ***Ollie Otter, the Division of Water's clean water mascot, got a hug from a student visiting the division display.***
Photo by Allison Fleck

"Improving the efficiency of our fleet makes good economic sense, and it's better for the environment."

Festivities moved to the Capitol where the public and state employees toured the "green" Capitol Education Center, walked through various educational displays hosted by state agencies and partners, got a close-up look at the University of Kentucky's solar-powered car and DEP's Chevy Volt, and watched as individuals were recognized for their environmental stewardship and schools acknowledged for focusing on energy efficiency.

Flatt wins Earth Day photo contest

Andrea Flatt, 14, of Cumberland County Middle School was recognized as the winner of the EEC's "Capture the Earth" photo contest for middle school students by capturing a close-up of a snail. Andrea received a certificate and a gift card for two nights lodging at any Kentucky State Resort Park with her family.


Photo by Cindy Schafer

Flatt wrote, "Kentucky is such a beautiful state with very beautiful animals...I actually took many other pictures but I chose this one because it shows that all animals big and small still have their unique characteristics, as you can see, the snail's antennae, the outline of the shell, it's just a very neat creature to me. Kentucky wildlife needs to be taken care of better if we want to keep seeing these beautiful creatures."


Photo by Cindy Schafer

Swanson receives Young Environmentalist Award

Ben Swanson, 16, balances his school work with his enthusiasm for working outdoors. Swanson received the EEC's Young Environmentalist Award for deciding on his own to serve as an environmental steward.

Swanson, a Henry Clay High School junior, is steward of the Jessamine and Garrard counties' Jim Beam Nature Preserve. He oversees 115 acres, maintaining the trails, ridding the area of invasive species and picking up litter. According to an April *Lexington Herald-Leader* interview, Ben spent last summer volunteering in the Denali National Park in Alaska as part of the Student Conservation Association.

That experience only reinforced his desire to be more involved in conservation on the home front.

"What I was doing was just hard, physical labor," said Swanson. "It is very directly gratifying. A month later, I can see that I have constructed a section of trail," he told the *Lexington Herald-Leader.*

KHLCF protects Lower Howard's Creek in Clark County

Article and photograph by Zeb Weese
Kentucky Heritage Land Conservation Fund

Since publication of the spring issue of *Land, Air & Water,* the Kentucky Heritage Land Conservation Fund (KHLCF) has purchased an addition to one of the most significant natural areas in the Bluegrass—the Lower Howard's Creek Nature and Heritage Preserve. With the 10-acre Cool Springs addition, the site is now approaching 400 acres protected in perpetuity by KHLCF conservation easements. While this addition is a small tract, it is biologically diverse. A complete botanical inventory will soon be conducted to determine what species are found on this tract; historic records indicate the federally endangered Running-buffalo clover was once found on the floodplain of the creek. Additional inventories will focus on wildlife in the area, particularly bat species that use the creek corridor and cliffs.

Clark County Fiscal Court owns and manages the preserve with help from a local nonprofit organization, the Friends of Lower Howard's Creek. The preserve protects habitat for several rare plant species as well as important archeological resources dating back to the 1780s. Guided hikes are offered periodically in the spring and a new public hiking trail, the John Holder Trail, has been constructed. The trailhead starts in the parking lot for the Hall's-on-the-River Restaurant on Athens-Boonesboro Road. For more information on Lower Howard's Creek, go to http://www.lowerhowardscreek.org/.

The KHLCF is administrated by the Department for Natural Resources and funded in part by the sale of "Nature's Finest" license plates. The fund has now protected and conserved nearly 80,000 acres in 63 counties. For more information visit the KHLCF website at http://heritageland.ky.gov or email zeb.weese@ky.gov.

2013 Least Wanted poster courtesy of the KY-EPPC

'LEAST WANTED' AUTUMN OLIVE

For many homeowners, landscape maintenance dominates the summer and fall months. We browse magazine pages and cruise through nurseries looking for that perfect shrub that will bring curb appeal to our property.

This year, the Kentucky Exotic Pest Plant Council (KY-EPPC) advises that you avoid planting the Autumn Olive and closely related Russian Olive. These dense shrubs are progressively invasive and can crowd out native species and close up open areas. Autumn Olive is even prohibited and banned in some states.

Visit http://www.se-eppc.org/ky/leastwant.htm to view the 2013 Least Wanted poster in its entirety (as well as posters dating back to 2000) and learn about native alternatives that are more desirable for our area and that also provide beauty to our landscape.

Kentucky UST program launches online training

By Virginia Lewis
Division of Waste Management

The Kentucky Underground Storage Tank (UST) Program recently introduced a new online training system to a select group of UST-designated compliance managers in a seminar that was jointly offered by the agency and the Kentucky Petroleum Marketers Association.

The new training application is called Kentucky TOOLS (Tank Operator Online Learning System) and is the gateway to an electronic library of lessons crafted to satisfy state- and federal-mandated training requirements for UST personnel. All materials on the site are based on Kentucky UST regulations and industry best practices.

"The innovative design has been a monumental undertaking but it will be worth it," said UST Branch Compliance Supervisor Stephen Kent. "Employees of the Division of Waste Management are responsible for all aspects of this new application. I'm proud of their hard work and support as we continue to implement the training requirements across the Commonwealth."

At full capacity, Kentucky's 10,464 active regulated petroleum underground storage tanks can hold nearly 87 million gallons of product—gasoline, diesel and related fuels. A certain level of upkeep and monitoring is required to prevent as many leaks as possible. Soon these tanks will have state-trained designated compliance managers.
Photo by Stephen Kent

Upon logging in, the online system is designed to identify only the lessons the user needs, based on the equipment at their UST facility. Subjects covered by the online content include spill prevention, overfill protection, release detection, secondary containment, corrosion protection, product compatibility and notification requirements.

"The Kentucky UST Branch has recognized and responded to the need for the required training to be cost-free, easy to access and readily available to Kentucky's UST personnel," said Kent. "Users will find this online training resource to be extremely valuable in their efforts to prevent releases and ultimately protect human health and the environment."

To assure optimal customer service and assistance, the online training will be made available to select groups of designated compliance managers, over the course of the next year, through the issuance of unique personal identification numbers. Successful completion of the training will be required annually.

For more information on Kentucky TOOLS or UST operator training, go to the Kentucky UST website at http://waste.ky.gov/ust, email Leslie.Carr@ky.gov or call 502-564-5981, ext. 4778.

Tier 3 vehicle standards

Continued from Page 1

According to the EPA, more than 158 million Americans are currently experiencing unhealthy levels of air pollution that are linked to adverse health impacts such as hospital admissions, emergency room visits and premature death. The Tier 3 standards would have immediate health and air quality benefits by reducing the impacts of motor vehicles on air quality and public health.

Motor vehicles are the second-largest emitters of nitrogen oxides (NOx) and volatile organic compounds (VOCs), the main ingredients in smog and ground-level ozone (see graph on Page 1). They're also the nation's leading source of carbon monoxide pollution.

The Tier 3 vehicle standards propose:

- 80 percent reduction in VOC and NOx tailpipe emissions.
- 70 percent reduction in particulate matter tailpipe emissions.
- Reduced fuel vapor emissions.

The Tier 3 fuel standards would require refineries to lower the average sulfur standard in produced fuels from 30 to 10 parts per million (ppm) beginning in 2017. This is similar to sulfur standards already being achieved in California, Europe, Japan, South Korea and several other countries.

Since California has been using lower vehicle emission standards for some time, the auto industry has had time to develop the technology needed to comply with Tier 3. In fact, auto makers have had to deal with two different vehicle standards up to this point—one for California and one for the rest of the nation. "Vehicle manufacturers are extremely supportive of Tier 3 because it sets uniform emissions standards for all vehicles nationwide," says Lyons.

EPA estimates the new standards would add only about 1 cent per gallon to the cost of gasoline at the pump. The cost of a new vehicle would increase by an estimated $130 by 2025.

The proposed Tier 3 rules were published in the Federal Register in May, after which EPA began accepting public comments. EPA will review and address all public comments before finalizing the rules.

For more information visit http://www.epa.gov/otaq/tier3.htm

Martin, first editor of *Land, Air & Water*, dies

Lou Martin, a published author and former writer and editor of *Land, Air & Water* magazine, died April 7. She was 83.

Martin published the first issue of *Land, Air & Water* in 1988 when the magazine focused primarily on environmental issues and the mission and actions performed by the Department for Environmental Protection (DEP) within the Natural Resources and Environmental Protection Cabinet. Martin was editor until 1992 when the magazine transitioned to a publication highlighting all cabinet programs and successes.

Martin was a long-time Kentucky state employee and, according to her obituary, an advocate for many causes, including environmental issues, senior citizen and civil rights.

"Lou was one of the most intelligent, creative writers to work with, always fair to everyone, stood up for what she believed to be right, even when it was not politically correct," said Lillie Cox, a former DEP employee, contributing writer for the magazine and close friend. "We lost a true friend to us and to the environment."

Martin lived in Red Wing, Minn., near her daughter and grandchildren and donated her body to the University of Minnesota School of Medicine.

Photo courtesy of Annette Hayden

Tree planting symbolizes resiliency

Arbor Day celebration held in Morgan County

Jennifer Turner
Division of Forestry

Since its beginning in 1872, Arbor Day has been a celebration of the planting of trees, an event that encourages people to add to the beauty of their community. In 1964, the Kentucky Division of Forestry (KDF) requested that the first Friday in April be designated Arbor Day and its annual observance has continued and grown through the years. Following this tradition, Gov. Steve Beshear declared April 5, 2013 as the 117th Arbor Day in Kentucky.

Arbor Day is a reminder that the simple act of planting a tree is one that will have an impact for generations to come. This years' state Arbor Day planting may have been the most important in recent memory. On March 2, 2012, an EF3 tornado struck West Liberty, Ky., and the surrounding areas of Morgan County. Nearly 90 percent of businesses and government offices took damage, with many being destroyed beyond repair. It changed the landscape of the area forever.

Morgan County is home to one of the division's two tree seedling nurseries. More than 1 million seedlings are grown at the Morgan County Nursery, where the tornado destroyed equipment, buildings and a cooler containing 400,000 seedlings, some of them found in neighboring West Virginia. Only one building remained unscathed.

Tree planting at Old Mill Park (left to right) Kentucky Woodland Owners Association (KWOA) member Jack Rentz, West Liberty Mayor Jim Rupe, Morgan County Judge-Executive Tim Conley, KWOA members Bob Godsett and Henry Duncan, and Division of Forestry Director Leah MacSwords.
Photo by KDF

To honor the community and the KDF employees dedicated to improving Kentucky's forested landscape, the state celebrated Arbor Day by planting a redbud in Old Mill Park in West Liberty on April 18. The redbud will grow as a symbol of Morgan County's resiliency and the division's well-established roots in the community.

"The tornado affected many employees' lives personally and has left us with a year full of recovery and now rebuilding," stated Division of Forestry Director Leah MacSwords.

The task of rebuilding has begun. Once the nursery is completed, the trees that will be raised there will be used to rebuild not only Morgan County's forest, but the forests of many communities statewide.

2013 Eco-Art Contest winners chosen

By Mary Jo Harrod, Division of Compliance Assistance

LEFT: ***"Too Scarce to Waste" drawn by Diana Pickett.***

BELOW ***(left to right): "O Say Can You Save Our Seas?" created by students in Jennifer Spade's art class; "Hypnotic Nature" created by Haley Hunt; "Purple" a photograph by Alexis Mijares; and "Together As One" by Taylor DeWeese.*** Photos by DCA

Creative, interesting, colorful and thought-provoking are a few adjectives that describe the artwork designed by Kentucky high school students who have won the third annual Eco-Art Contest, which is sponsored by the Kentucky Department for Environmental Protection (DEP). Viewed by hundreds of visitors annually, the hallways at the DEP Training Center in Frankfort are decorated with artwork based on the contest themes of conservation, pollution prevention and environmental protection. Students were encouraged to submit a variety of artwork, including drawings, paintings or prints, mixed media, sculptures and photography.

"It is an honor for the department to showcase Kentucky high school students' expression of our environment. This contest supports our mission by encouraging students to incorporate the environment into their artwork and inspire others about environmental issues," said R. Bruce Scott, DEP commissioner.

Winning entries were submitted by Alexis Mijares, Haley Hunt and Taylor DeWeese of Metcalfe County High School in Edmonton; Diana Pickett of Pleasure Ridge Park High School in Louisville; and Jennifer Spade's art students from Paul Blazer High School in Ashland.

Visit the DEP Training Center to view the winning artwork, past and present. Details about the 2014 contest will be announced later this year. For more information, visit http://dca.ky.gov/LGGS/Pages/ecoart.aspx.

KDF sees changes in staffing, district offices

By Jennifer Turner
Division of Forestry

On Feb. 16, 2013, the Kentucky Division of Forestry (KDF) was reorganized so that the division could operate within its approved budget appropriation. The district structure went from nine district offices to five regions. Twenty-four employees were assigned to agencies outside of the division.

Within the division's main office, some sections were eliminated, transferring the duties to existing branches in the agency. The Fire Management Section was changed to a branch and includes the responsibilities for overseeing the training and equipping of division wildland firefighters, suppressing wildland fires, administering volunteer fire department and community grants, and overseeing the federal excess property program that gets firefighting equipment out to fire departments within the state as well as the division.

Just as before, the division offers many services to the citizens of the Commonwealth. Here are just a few:

- Forest management options to landowners
- Technical assistance to USDA Farm Bill programs
- Wildland fire suppression
- Forestry education
- Kentucky Forest Conservation Act education and enforcement
- Forest health
- Urban and community programs
- Overseeing and maintaining 10 state forests
- Low-cost seedlings for reforestation

Brewery revitalizes building, Lexington neighborhood

Continued from Page 5

reused. The floors, walls and roof were intact. In the room where the brewery is housed, the original yellow tile walls remain, still in good condition, and several rooms have original tile floors. Portions of the old maple loading dock and wood from the University of Kentucky's Memorial Coliseum were used to form the bar area. Metal came from the mixers in the upper floor of The Bread Box.

The Bread Box was not an overly expensive building, and it already had a cooler in the back, floor drains and industrial utilities, all of which are perfect for West Sixth Brewing. Also, several positive factors converge at that location, including a biking and jogging path; nearby Bluegrass Community and Technical College campus, which is under construction; and Transylvania University is a few blocks east. The Bread Box is the latest in a series of projects transforming Jefferson Street into a restaurant and entertainment corridor.

"The neighbors are happy because the corner went from being blighted to becoming a vibrant, positive influence," says Self. "We measure success not only by making great craft beer, but also by how it helps our community. We will always strive to protect our environment even if it costs us more to do so. The microbrewery donates 6 percent of its profits to local charities and nonprofit organizations that make our community a great place to live."

The practice area for the Roller Derby's Roller Girls. Mary Jo Harrod photo

Awards

Berea Solar Farm, others recognized for environmental stewardship

By Janet Pinkston
Environmental Quality Commission

The Kentucky Environmental Quality Commission (EQC) recently honored individuals and institutions that have demonstrated deep concern or activism on behalf of the environment.

Several champions of clean air, clean water, pollution control and other elements vital to healthy ecosystems find themselves on the receiving end of an EQC Earth Day Award each spring.

Honorees represent a thin green line of protection for eco-sensitive policies and procedures. This year, the crowd that assembled to laud the winners heard a speech from environmentalist Sarah Lynn Cunningham during the April ceremony.

• **Berea Solar Farm - Public Service Award—**In Berea, individuals may lease photo-voltaic solar panels from the only community solar farm in Kentucky. It is owned and managed by Berea Municipal Utilities and the power generated by their leased panels is credited back to their own utility bills. The project exceeded its goals to reduce carbon emissions and boost energy flexibility, keeping the money flow in Berea.

• **Lee Andrews - Lifetime Achievement Award—**Andrews created two funds that are credited with a number of milestones. First, the Kentucky Aquatic Resources fund directs monies to priority aquatic needs, such as underwriting the Kentucky Department of Fish and Wildlife Resources' Center for Mollusk Conservation. The Frankfort facility is an international leader in freshwater mussel propagation and management; techniques include habitat restoration and fish passages, water quality and toxicity studies. Second, the Indiana Bat Conservation Fund, which helped acquire nearly 7,000 acres of conservation land in the Commonwealth.

• **Tony Powell—**Concerned about the way failing septic systems polluted Eagle Creek, Powell secured grants to form the Eagle Creek Watershed Council. With two additional grants, he developed the first watershed-based plan in Kentucky. Since 2005, more than 57 septic tanks have been repaired or replaced in the Ten Mile Creek Watershed by the Northern Kentucky Health Department, preventing 3 million gallons of sewage from entering local waters.

• **Watershed Watch in Kentucky—**is a statewide volunteer effort that trains citizens to collect water samples from rivers and streams in order to measure contaminants. Volunteers learn how to measure and record dissolved oxygen, conductivity, pH, temperature and other water quality indicators. The samples are then analyzed in laboratories to detect pesticides, *E.coli* bacteria or metals. The information gathered provides an extensive database for water quality information.

• **River Fields**—has a mission to protect and preserve natural and cultural resources and landscape along the Ohio River corridor. It is a nationally recognized land trust known for its work in education, policy advocacy and land conservation. The organization has preserved 2,200 acres of land through conservation easements. Partnering with Kentucky Land Trusts, River Fields seeks to elevate expertise in land conservation through best management practices to preserve undeveloped open space.

• **Steve Coleman**—as the former director of the Kentucky Division of Conservation, he devoted his career to conserving farm land and improving water quality. With programs such as the Kentucky Soil Erosion and Water Quality Cost Share program, landowners were made aware of how to preserve soil nutrients and reduce harmful runoff. Coleman promoted best management practices such as rotational grazing, cover crops, vegetative filter strips, streambank stabilization and sinkhole protection.

• **DuPont Louisville Works**—is the largest producer of Freon 22 in North America. In the manufacturing process, a greenhouse gas called HFC-23 is emitted. Decision makers at DuPont set out to

Continued on next page

Berea Solar Farm recipients (left to right): Horace Brown, Kentucky Environmental Education Council; Steve Coleman, EQC commissioner; Dr. Kimberly Holmes, EQC chair; Sarah Lynn Cunningham, keynote speaker; Steve Boyce, former chair of Berea Municipal Advisory Board; Josh Bills, Berea Municipal Advisory Board; Tom Herman, EQC commissioner; Ed Fortner, director of Berea Municipal Utilities; and Dr. Len Peters, secretary of the Kentucky Energy and Environment Cabinet. Creative Services photo

Awards

Fayette, Logan County teams to compete at national level

By Johnna McHugh
Division of Conservation

Two teams of high school students will represent Kentucky on the national level at events this summer in Bozeman, Mont., and this fall in Louisville, Ky. The teams, from Fayette and Logan counties, were recent winners at the statewide Envirothon competition held at the Kentucky Leadership Center in Jabez, Ky.

The students competed against other teams on natural resources-related topics, including soils, forestry, aquatics, wildlife ecology and a current environmental issue pertaining to "Sustainable Rangeland Management: Achieving a Balance Between Traditional Agricultural Uses with Non-Agricultural Uses on Montana Rangelands."

"The Kentucky Envirothon is a great competition for students," said Kimberly Richardson, director of the Kentucky Division of Conservation. "More and more children are tethered inside to electronics, but the Envirothon gets kids to expand their horizons by being outdoors. They learn to care about the natural resources that surround them each day."

The Fayette County girls team will go on to compete against teams from across the U.S. and Canada at the 2013 North American Envirothon in Montana in August.

The Logan County boys team, also the top-ranked FFA team, will compete in October at the Environmental and Natural Resources Career Development Event, which will take place in conjunction with the National FFA Convention in Louisville.

The Kentucky Envirothon is sponsored by Kentucky Association of Conservation Districts, Kentucky Corn Growers Association, Kentucky Small Grain Council, Kentucky Farm Bureau, Kentucky Department of Agriculture, Kentucky Association of Conservation District Employees and Kentucky Association of Conservation Districts Auxiliary.

TOP: ***The Fayette County girls team hold backpacks presented to them by the Kentucky Farm Bureau.*** **ABOVE:** ***The Logan County boys team, and top-ranked FFA team, were also presented with backpacks courtesy of Kentucky Farm Bureau.*** Photo by Davis Hargis

Berea Solar Farm, others recognized for environmental stewardship

Continued from previous page

mitigate the effects by lowering HFC-23 emissions. They did so by making the plant more efficient by improving equipment reliability in order to ensure the capture of as much HFC-23 as possible, lowering product-to-pollution ratio by 43 percent.

- **Smithfield Middlesboro—**The packing plant in Smithfield, Ky., boosted recycling from 2 tons per month to 37 tons in order to reduce waste to the landfill. Employees recycled smoke wood chips, large sheets of plastic, brown paper towels, cardboard cores and ingredient bag paper, office paper, magazines, household batteries, electronic waste and plastic stripping.
- **The Green Society at Kentucky State University—**removed 48,000 pounds of electronic waste from campus. The club focuses on ways to make the university more sustainable. Its Earth Day activities include a recycle-a-thon, a fashion show featuring clothing made of recyclables, a cell phone and battery recycling program, campus cleanups, campus recycling motto and logo contests for t-shirts and recycling bins.

Energy and Environment Cabinet
Office of Communications and Public Outreach
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Seedling nurseries: growing trees for healthy and productive forests

The Kentucky Coffeetree is also known as Kentucky's State Heritage Tree. It is picturesque in summer and winter. It grows for only six months of the year – leaves do not appear until late May/early June and drop by the first frost. It is dioecious, which means that the male and female flowers are borne on separate trees. It is a member of the legume family, but unlike its locust cousins, it is not a nitrogen fixer.

Kentucky Coffeetree is a moderately fast-growing tree that can be found on a variety of sites throughout Kentucky, including floodplains and river valleys but is also seen on rocky hillsides and limestone woods. It has become a popular urban landscape tree since males do not have seed pods and the Kentucky Coffeetree tolerates drought and pollution.

Seedlings are available from early fall to early spring from the Division of Forestry's nurseries. Orders are shipped at your request for planting projects during the dormant period throughout the winter. To obtain an order form, visit http://forestry.ky.gov/statenurseriesandtreeseedlings/Pages/default.aspx or call the Division of Forestry at 1-800-866-0555.

Just the Facts: Kentucky Coffeetree (Gymnocladus diocus)

- ***Growth:*** The Kentucky Coffeetree typically grows 60 to 75 feet in height with a circumference of 12 to 24 inches. It produces short, stubby branches, often with twisted, gnarly twig tips if growing in the open. The leaves are large, 1 to 3 feet long and bipinnate (leaflets divided into other leaflets).
- ***Range:*** Kentucky Coffeetree can be found from southern Ontario, Canada, south to Kentucky, east to western Pennsylvania and west to Nebraska.
- ***Wildlife Uses:*** The 6- to 10-inch-long seed pod contains 4 to 8 seeds that have a hard, impermeable seed coat that prevents or delays germination. The seed is poisonous to some animal species.
- ***Tree Trivia:*** Kentucky's state champion Kentucky Coffeetree is in Harrison County and measures 120 feet tall and has a circumference of 132 inches. The seeds of the tree were once roasted for food and served as a poor substitute for coffee by early pioneers.

Photo by Jeffrey Pippen, Duke University