



# Land Air & Water

Kentucky Energy and Environment Cabinet

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Volume 22 Number 4  
Fall 2011



# Land Air & Water

since 1988

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## From the Secretary's Desk

**A**s I was preparing to write a message for this issue of *Land, Air and Water*, I received notice that President Obama was withdrawing the U.S. EPA's proposed new standards for ozone. This action could be a pivotal moment in the ongoing debates regarding environmental policy in the United States.

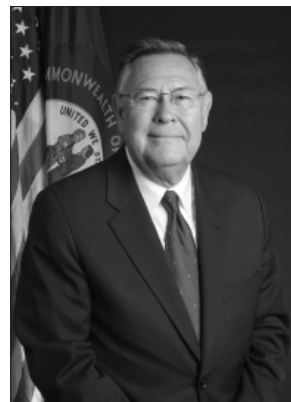
As cabinet secretary responsible for ultimate enforcement of Clean Air Act and other environmental regulations in the state, the EPA's proposed revised ozone rule and the time frames under which it was proposing compliance were very troubling. It was untimely in that the EPA had proposed more stringent standards several years in advance of what is called for in the Clean Air Act. The accelerated timing of the proposed rule was going to place an enormous burden on already strapped state regulatory agencies, and was creating further uncertainty among businesses and industries.

It's my hope that this recent action by President Obama will allow for more constructive dialogue and decision making going forward, as we try to make sure we protect our environment and our health in the most effective, efficient ways possible. My career began with an interest in air quality—a very personal interest. In 1948, there was an air pollution episode in Donora, at that time a steel town in southwestern Pennsylvania. Twenty-three people died during this event in October of that year. My uncle Milton, who had asthma as a result of injuries received during World War I, was one of those victims.

That incident had a profound effect on me, and I don't take issues of protecting the air we breathe lightly. We've made much progress in the intervening years, and we will continue to make progress going forward. But, as with other elements of human development, there will always be impacts to the environment. It is our purpose to minimize those impacts in a rational, responsible manner, taking into account the resulting effects on jobs, the economy, and prices for goods and services.

In other words, it's not possible or even desirable to say we have to protect the environment at all costs. As with every other human activity, we have to accept certain risks. What often happens, however, is discussions become so polarized that a mere mention of effects on jobs and economy is taken as being pro-polluter, anti-environment.

We'll continue to have debates on environmental policy, and how, especially today, environmental policy at the federal level is driving energy and economic policy as well, without a clear direction of where we need to be going. It is for these reasons Governor Beshear and I have been outspoken with our displeasure regarding certain policies, guidance documents and proposed regulations and have asked for the EPA and the administration to engage in dialogue with us to ensure environmental and human health protection is achieved in a manner that also helps us to grow our standard of living, create jobs and provide national security.



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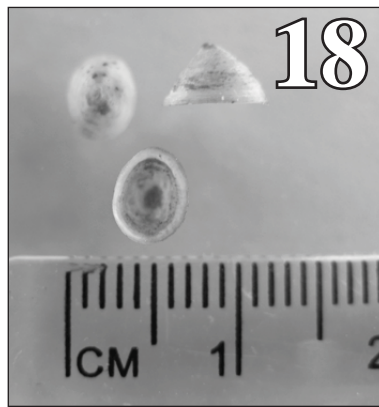
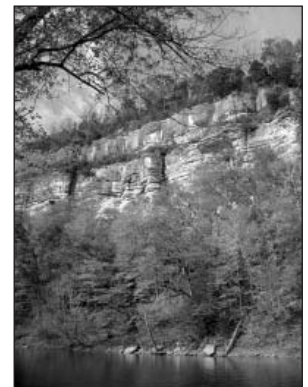
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## Our Cover

The palisades at Dix  
River provide  
a breathtaking  
backdrop for  
nature’s fall foliage.  
Photographed by  
Gail Perry, former  
Office of Mine  
Safety and Licensing  
employee.





# From luxury boats to livable homes

By Lona Brewer

Department for Energy Development and Independence



*The first energy-efficient modular home built at the Stardust Cruisers houseboat facility was assembled onsite in Monticello. Photos by Stephen Taylor, Kentucky Highlands Investment Corp.*



It's a project that has received positive attention from the state's second largest newspaper and from the federal Department of Energy. Most importantly, it's a project that has the power to boost the economy by putting people back to work, increase affordable, energy-efficient housing and reduce environmental impacts to the region. The *Houseboat to Energy-Efficient Residences* project is underway to build energy-efficient modular homes on the production lines of houseboat factories in southeast Kentucky.

The Lake Cumberland area was once a thriving industrial community of houseboat manufacturers. Factories in Wayne, Pulaski, Clinton, Russell and Adair counties employed an estimated 1,000 people, many of them skilled carpenters and electricians. These factories made floating houses that sold for thousands and sometimes millions of dollars. However, the industry took a hit from the recession forcing several plants to close, and consequently leaving hundreds of skilled employees without a job.

The push for the houseboat to residences project came from Jerry Rickett, president and chief executive officer of the Kentucky Highlands Investment Corp. (KHIC), whose mission is to increase economic development in a 22-county area in southeastern Kentucky. KHIC also has an interest in promoting more energy-efficient homes to replace energy-inefficient mobile homes and the aging housing inventory in the area.

The project is a collaboration between the KHIC and the University of Kentucky College of Design that also conferred with staff at the UK Center for Applied Energy Research who contributed information on energy-efficient materials and technologies in Kentucky. More than 50 students and teachers took part in designing an energy-efficient house that could be built in a factory and, most of all, be affordable.

In 2009, both the city of Monticello and Whitley County

applied for funding under the Energy Efficiency and Conservation Block Grant to have one of these homes placed in their respective areas. Both communities also received \$125,000 to establish a revolving loan program to manufacture these modular homes.

Both homes have two bedrooms and one bathroom with unique design features, such as built-in cabinetry, so that homeowners don't have to spend a lot of money on dressers and other storage furniture. The modular homes are extremely energy efficient with all appliances and windows being ENERGY STAR rated. Most importantly, the homes were designed with low energy costs in mind, averaging approximately \$1.65 per day for heating and cooling.

"Many people who utilize other manufactured housing are often faced with utility bills so high that they simply cannot pay them," said Rickett. "This project will accomplish the goals of creating safe, energy-efficient, affordable homes for our residents while adding good-paying jobs to the local economy and promoting Kentucky products."

The first two homes are being built in the Stardust Cruisers houseboat manufacturing facility in Monticello. An estimated 70 to 80 percent of the components used to build the homes have come from other industries within Kentucky.

"We believe that the knowledge acquired by using the insulation, heating and cooling technologies for these high-efficiency homes will provide a synergy with our houseboat manufacturing," said Terry Aff, president and chief executive officer of Stardust Cruisers.

The first unit was moved from the Stardust Cruisers facility and assembled onsite in Monticello in August. After the two homes are sold, the funds will be returned to the revolving loan program to pay for the construction of additional units.

# Flooding no match for Fultz and crew

*Cave Run water operator lauded for efforts to keep pumps chugging*

**By Allison Fleck**  
**Division of Water**

**W**hen the rains fell in April and the waters rose, Cave Run Lake Water Commission plant operator Jeff Fultz took “extraordinary efforts to keep the plant in production,” said Division of Water (DOW) officials.

Dan Fraley, supervisor of the DOW Morehead Regional Office, and Environmental Inspector Dan Canafax made almost daily visits to drinking water plants in the area to track the impact of flooding on plant intakes and operations. Status reports that Fraley sent to Frankfort describe the critical situation Fultz faced and the persistent and often creative steps Fultz took to protect the drinking water supply of 13,500 people.

To appreciate the magnitude of Fultz’s task at hand, it helps to know the history of the Cave Run Lake Water Commission.

The commission was created in 2001 to provide public water to Menifee County and the surrounding region via a 2-million-gallons-per-day water treatment plant. County and city governments realized that by working together, they could maximize their resources and improve the water supply for their citizens. Construction of the \$13 million plant was completed in August 2005. The commission is a wholesale supplier to the cities of Frenchburg and Jeffersonville (Montgomery County) and Morgan County Water District (MCWD), which in turn sells water to Campton Water in Wolfe County.

With such a wide population served, Fultz said he felt a heavy responsibility to keep the plant operating any way he could with the help of his staff of five.

“The first problem came around April 17 when the valve pit flooded from seepage and shorted out the solenoids at the fixed intake where the plant draws water from the lake,” said Fultz. “We had to keep it dry, so we installed a 3-inch electric water pump to dewater



**TOP LEFT:** Jeff Fultz

**TOP RIGHT:** The electric solenoids on the valves.

**MIDDLE:** DOW’s Dan Fraley skims the flooded lake bank to check the valve pit. The tower normally sits about 15 feet above the surface and 15 feet away from the water’s edge. Photos by Dan Canafax

**ABOVE:** A pedestrian sign at the Cave Run Lake marina parking lot. Photo by Kim Bandura, Morehead News

the valve. We also sealed some of the leaks in the corners and plugged a floor drain through which water was entering. I figured the lake would have to rise about 8 more inches to get over the vault itself, and with more rain predicted, it was quite possible.”

Fultz said he and his crew worked around the clock sealing water entry points and checking the vault. They covered the solenoids, which are electromechanical valves, with silicone to prevent water damage and keep the valves operational. Priority was also given to producing water and filling all the tanks in the systems they served, which included two in Jeffersonville, five in Frenchburg and seven in the MCWD.

Julie Roney, DOW drinking water coordinator, praised Fultz and his staff as well as the subsidiary utilities for taking proactive stances in preparation for a worst-case scenario of the plant shutting down completely.

“These utilities foresaw that the situation might very well worsen before it got better, so

*Continued on Page 11*



## Award-winning revolving loan fund brings energy efficiency to state facilities

Patriotic décor adorned the driveway and façade of the Thomson-Hood Veteran's Center in Wilmore on a sunny July day as Gov. Steve Beshear joined residents and staff of the center, along with other state and local officials, to announce energy efficiency changes to the Commonwealth's veterans' facilities. These energy updates, made possible by the Green Bank of Kentucky, will create a healthier environment for residents, save the state significantly in energy costs, save taxpayer dollars, promote economic development and create new green collar jobs. It is funded by the American Recovery and Reinvestment Act (ARRA) from the U.S. Department of Energy and administered by the Kentucky Finance and Administration Cabinet.

The Green Bank of Kentucky is a revolving loan fund created by a partnership between the Kentucky Department for Energy Development and Independence and the Finance and Administration Cabinet that promotes energy efficiency in state buildings through competition for low-interest loans.

"I am pleased that Green Bank's second-largest loan to date goes to improve service for veterans in our state veterans' nursing homes," said Gov. Beshear. "This project represents yet another success for the Green Bank. In tight budget times, it allows agencies to make needed improvements that save money immediately without having to pay large sums up front, reduces use of electricity and water, and saves taxpayers money in both the short and long runs."

In November 2010, the program was nationally recognized for its innovative use of ARRA funding to finance energy-efficient improvements in state buildings, where the savings are guaranteed and used to repay the loan. The Finance and Administration Cabinet reported that the *State & Local Energy Report* magazine ranked the Green Bank of Kentucky third in a list of the "Top 10 Most Exciting ARRA Funded State Energy Projects."



*In January 2010, the Kentucky School for the Blind received Green Bank of Kentucky funds to implement energy conservation measures.*  
Photo by Brooke Smith

## Green Bank of Kentucky

By Brooke Smith  
Department for Energy Development and Independence

"Kentucky is truly a pioneer in creating such an innovative funding mechanism that allows state agencies to continue to make improvements and promote energy conservation during a time when especially lean budgets could not have afforded such opportunities," said Lori Flannery, secretary of the Finance and Administration Cabinet and chair of the Green Bank of Kentucky. "Because it operates as a revolving loan program, the money will continue to recycle so that we'll be able to help many agencies over a period of many years."

### How it works

Green Bank of Kentucky financing pays for up-front costs of energy-savings projects. Money saved through reduced energy costs will help facilities to pay back the loan. Approved energy loans carry a fixed rate for the term of the loan. Under a contract, the Energy Service Company (ESCO) guarantees the level of energy savings the project will gener-

ate. That guarantee means the ESCO will pay the difference if energy consumption exceeds the guaranteed amount. The minimum amount that may be borrowed is \$50,000.

State facilities may use the energy loans, including secondary loans, for construction, upgrades or retrofits that result in reduced energy usage and costs. Loans may also be used to pay for certain administrative costs associated with an energy project, and projects may involve one or more measures for individual or multiple sites.

"Reducing energy consumption in government buildings is an integral part of my comprehensive strategy for energy independence," said Gov. Beshear. "The Green Bank of Kentucky helps state agencies implement progressive changes that will have a positive, long-lasting impact on our environment and will also save tax dollars. It's exciting that Kentucky is receiving national attention for our efforts

*Continued on Page 15*

# DNR, coal counties revel in success of partnerships

By Evan Satterwhite  
Department for Natural Resources



Newly constructed community and senior citizen centers, parks, playgrounds and fire departments are popping up across Kentucky as counties make use of coal severance tax and other coal-related fees to benefit their communities.

The Department for Natural Resources (DNR) collects permit and acreage fees from coal companies for surface mining permits. Coal severance tax is returned to the counties at the rate of 50 percent; permit and acreage fees are returned at the rate of 33 and one-third percent. Fiscal courts of the coal county where the mining permit is located determines how the funds can be used—including improvements to infrastructure such as water, sewer, roads, or landfills.

“Coal-producing counties are our partners, and these funds provide a direct benefit for their efforts,” says DNR Commissioner Carl Campbell, in reference to permit and acreage fees.

Case in point, Pike County demonstrates enormous benefits realized from taxes and fees received from the extraction of coal. It is the largest county, as well as the largest producer of coal, in the Commonwealth.

In central Appalachia, mining is largely responsible for the economic impacts to Pike County, bringing a multitude of much-needed jobs. In addition, taxes and fees paid by the coal companies have built necessary infrastructure that should last well into the future.

The combined leadership of Pike County Judge/Executive Wayne T. Rutherford, county magistrates, state legislators, as well as former county and state officials, has made Pike County the progressive place it is today.

Over the past three years, Pike



## Coal Severance Taxes

Kentucky adopted coal severance tax legislation in 1972. The tax is collected through the Revenue Cabinet based on a formula per ton of coal produced and then split with the counties on a 50/50 basis. The counties receive funds through the Local Government Development Fund and the Local Government Economic Assistance Fund. More than \$200 million in coal severance taxes is collected annually in Kentucky from companies that produced over 100 million tons of coal. Pike County received \$24 million during the past three years in single-county coal severance and \$14.5 million of quarterly coal severance funds over the past three years.

## Permit and Acreage Fees

Thirty-one counties benefit from acreage fees paid by coal companies. This year, Pike County received \$99,862 with 10 counties receiving more than \$23,000 each. The DNR returned \$493,000 to 37 counties in 2010 and \$616,000 to 34 counties in 2009.

County has won 16 National Association of Counties (NACo) Achievement Awards for innovative and effective government projects. Twelve of those awards were for programs or projects directly related to coal severance tax and permit fees.

Pike County, and others like it, continue to be diligent in the use of these funds—building communities, providing services and improving infrastructure—that will ensure a better quality of life for its citizens.

**TOP:** A percentage of coal severance funds as well as permit and acreage fees was used to create this children's play area at Hatfield-McCoy Park for the enjoyment of families in Pike County.

**ABOVE:** A groundbreaking event for the Belfry Volunteer Fire Department in 2009 in Pike County. The land was donated by the Kentucky Transportation Cabinet. DNR photos



# New rule targets interstate air pollution

By Roberta Burnes  
Division for Air Quality

The U.S. Environmental Protection Agency (EPA) finalized new rules in July that will address air pollution that crosses state lines. The Cross-State Air Pollution Rule (CSAPR), which was known as the Clean Air Transport Rule when it was proposed last year, requires power plants in 28 states—including Kentucky—to cut emissions that contribute to the formation of soot and smog (see map below).

Carried long distances across the country by wind and weather, power plant emissions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxide (NO<sub>x</sub>) continually travel across state lines. As the pollution is transported, it reacts in the atmosphere and contributes to harmful levels of smog (ground-level ozone) and soot (fine particles), which are scientifically linked to widespread illnesses and premature deaths and prevent many cities and communities from enjoying healthy air quality.

“We all know that pollution generated in one state or community does not stop at the state or the city lines,” said EPA Administrator Lisa Jackson.

***“Kentucky is well-situated with respect to CSAPR. Most of the larger electric generating units at Kentucky power plants have already made the necessary modifications required to comply with the 2012 phase of the rule.”***

John Lyons, Director  
Kentucky DAQ

“These Clean Air Act safeguards will help protect the health of millions of Americans and save lives by preventing smog and soot pollution from traveling hundreds of miles and contaminating the air they breathe.”

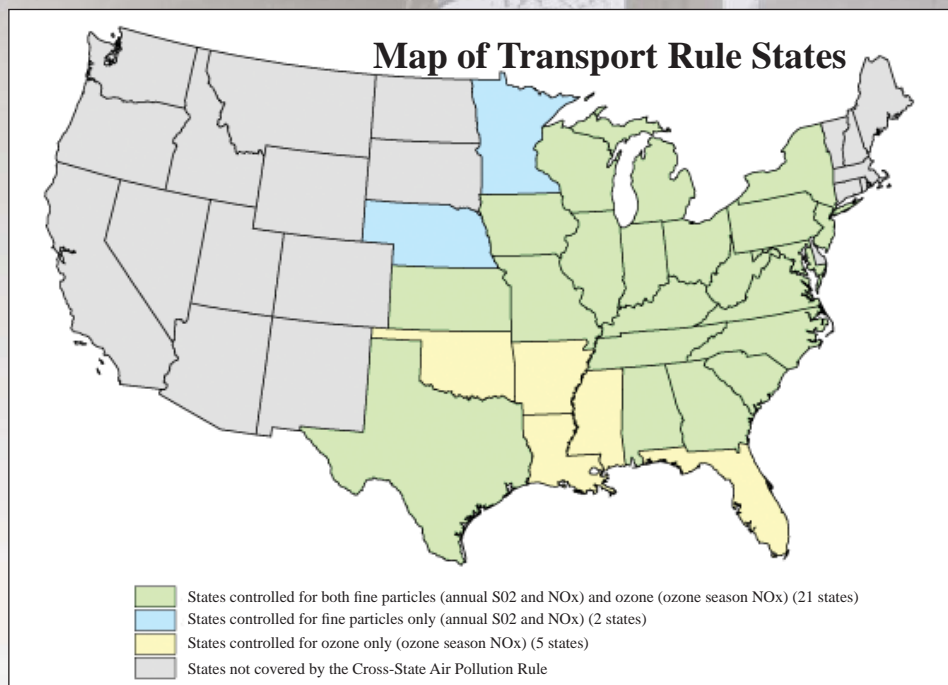
By 2014, EPA estimates the new rules will reduce emissions from electric generating units in the covered states by 6.4 million tons of SO<sub>2</sub> and 1.4 million tons of NO<sub>x</sub> per year over 2005 levels. These reductions will have significant benefits for public health, preventing an estimated 13,000 to 34,000 premature deaths each year. The rules will also reduce acid rain and its damaging effects on forests, streams and lakes.

“Kentucky is well-situated with respect to CSAPR,” said Kentucky Division for Air Quality (DAQ) Director John Lyons. “Most of the larger electric generating units at Kentucky power plants have already made the necessary modifications required to comply with the 2012 phase of the rule.”

The new rule replaces the Clean Air Interstate Rule (CAIR), which federal courts remanded in 2008. A federal appeals court later ruled to keep CAIR in place temporarily until a new rule was developed—CSAPR—that would address the court’s concerns.

Under CSAPR, states are permitted to trade allowances for SO<sub>2</sub> and NO<sub>x</sub>—similar to the acid rain program established in the 1990s. Under this plan, each state is given a strict emission ceiling to ensure reductions are met.

In response to the court’s direction to replace CAIR as quickly as possible, EPA is adopting federal implementation plans, or FIPs, for each of the states covered by this rule; states may replace the FIPs with State Implementation Plans (SIPs). Kentucky DAQ will work with power plants affected by the rule to determine whether developing a SIP to include CSAPR is in the best interest of the Commonwealth.





# AML alleviates drainage problems for Moore Street residents



unstable. Large cracks also formed in the foundation of Smith's home from ground movement caused by the mine drainage.

According to residents, during winter months the mine drainage would form a 3-inch-thick slab of ice inside the Smith's garage that then iced over onto Moore Street, raising safety concerns among the neighbors.

AML reclamation to abate these mine-related problems included construction of reinforced concrete and gabion retaining walls and associated drainage controls behind and around the Smith's primary residence and adjacent rental property. Smith Brothers Excavating of Manchester, Ky., was awarded the contract and began construction in September 2010.

Months later, heavy spring rains resulted in an increase of mine drainage caus-

ing the hillside to slide and a 4-inch waterline to break. AML's design team worked quickly to change the original project plans to include placement of 48 feet of 18-inch concrete pipe at the end of the new gravity wall so rainwater drainage would properly exit the area and prevent flooding.

Once a steep slope, the Smith's yard was leveled and reseeded,

and a safety fence was constructed at the front of the property. Additionally, Smith Brothers Excavating replaced four unsafe wooden and concrete staircases, providing the landowners and their guests with safe access to and from the property.

Recently, Smith expressed her gratitude for AML's work saying, "I am just so thankful for everyone's hard work. Our hillside was a complete mess with water running everywhere, the mosquitoes and mold were a nightmare and our basement was constantly flooding. I am so pleased with the work AML has done for us."

AML inspector Stefanie Crowe is just as pleased with the positive outcome.

*Continued on Page 19*



*AML inspector becomes "like family" as reclamation project wraps up*

**TOP:** Prior to reclamation—Bottom of hillside adjacent to Smith residence. **RIGHT:** After reclamation—Concrete wall (behind residence) and gabion retaining wall (in front of property) with safety fence.

**ABOVE:** Landowner Anita Smith (left) and AML project inspector Stefanie Crowe stand on Smith's reclaimed property. AML photos



**By Corey Ann Howard**  
**Division of Abandoned Mine Lands**

The steep hillside located above Jordan Street in the downtown community of Hazard had been gradually sliding for years. Residents living in the area were concerned for their families' safety and frustrated with property damage, and that prompted 37-year resident of Moore Street, Anita Smith, to contact the Division of Abandoned Mine Lands (AML) for help.

Prior to the July completion of the Anita Smith AML Project, the neighborhood endured constant mine drainage flowing down from the hillside above causing the earth to slide and property to become





**Roberta Burnes checks the tire pressure on a DEP fleet vehicle.**  
Photos by Jon Trout, DAQ

## DEP joins *Green Fleets of the Bluegrass*

By Roberta Burnes  
Division for Air Quality

With 252 vehicles serving 703 employee drivers across the Commonwealth, the Department for Environmental Protection's (DEP) fleet makes up nearly a quarter of all on-road vehicles in the Kentucky Energy and Environment Cabinet. That adds up to a lot of miles—an average of 3 million miles per year—which adds up to a lot of fuel.

So when the Kentucky Clean Fuels Coalition (KCFC) announced the formation of a new program designed to improve fleet performance, it just made sense for DEP to participate. *Green Fleets of the Bluegrass* is a voluntary program that aims to improve

the environmental performance of fleets across Kentucky by reducing petroleum fuel use.

"This is a first step toward evaluating the efficiency of our fleet," said DEP Commissioner Bruce Scott. "In addition to substantially cutting fuel costs, these actions will have a significant impact on public health and the environment, since transportation accounts for over 50 percent of all air pollution nationwide."

DEP participation in *Green Fleets* supports the Governor's Energy Plan, which calls for a 30 percent improvement in the fuel economy of the state vehicle fleet by 2015 and a 50 percent improvement



by 2025. A key strategy of the plan is the development of purchasing criteria to increase the overall fuel efficiency of the vehicles in the state fleet.

The Division for Air Quality (DAQ) is coordinating *Green Fleet* efforts and is gathering and entering DEP fleet data into the *Green Fleets* database. KCFC will review this baseline data and provide recommendations for improvement. DEP will then devise and undertake an action plan for achieving the goals of the program.

Currently, only 13 of DEP's 252 vehicles are passenger cars, including five hybrids; the rest are SUVs, trucks and vans. DEP's fleet has an average city highway fuel economy of 15.6 miles per gallon—a number DAQ Director John Lyons is confident can be improved.

"Too often, single drivers are having to drive larger vehicles because so few sedans are available," said Lyons. "In many cases a smaller, more efficient vehicle will do the job."

Strategies for improving fleet efficiency could include:

- Downsizing fleet vehicles to the smallest class possible.
- Purchasing the most fuel-efficient vehicles.
- Establishing a renewable fuel standard for the fleet.
- Adopting an idle-reduction policy.

Individual actions can also go a long way toward improving the overall efficiency of any fleet—and the same goes for your own vehicle.

- Turn the engine off if you're going to be parked for more than 10 seconds. Idling wastes fuel and increases wear and tear on the engine.

• Check tire pressure. Underinflated tires make your vehicle work harder and waste fuel.

• Slow down. Driving 60 mph instead of 70 mph can raise your fuel economy by as much as 10 percent and can dramatically decrease tailpipe pollution in many vehicles.

• Plan ahead. Anticipate stops and let your vehicle coast down as much as possible. Avoid the increased pollution, wasted gas and wear on your brakes created by accelerating and braking hard.

### ***Green Fleets of the Bluegrass***

Launched in May 2011, *Green Fleets* encourages diverse fleets across the Commonwealth to pursue best practices while achieving recognition for successes along the way. Participating fleets are evaluated annually on seven criteria—vehicles, fuel, maintenance, operation, partnerships, strategy and transparency. Participating fleet managers complete an online survey to submit quantitative data and descriptions of fleet activities. Fleets demonstrating exceptional results are recognized with an annual award. Examples of exceptional results include substantial fuel reductions, leadership on advanced vehicle and alternative fuel infrastructure development or best in class programs for fleet size or sector. For more information about *Green Fleets of the Bluegrass*, visit <http://www.kentuckycleanfuels.org/greenfleets.htm>.



# Boyle County receives DWM grants

*Solid Waste Coordinator Donna Fechter passionate about recycling education*

By Shannon Powers  
Division of Waste Management

"Recycle Boyle County—It's the Future" is not just a slogan for Boyle County's Solid Waste Coordinator Donna Fechter. She hopes it will become a way of life for the county's citizens. Fechter has put it on everything from recycling trailers placed throughout the county to recycling bins placed in schools. She has even incorporated the slogan into commercials and jingles touting the virtues of recycling.

"Of course, none of this would be possible without the Kentucky Pride Fund recycling grants the county has received through the Division of Waste Management's Recycling Assistance Section," said Fechter. "We have been able to purchase equipment that has made the pickup and packaging of materials easier. We have also purchased education and advertising tools that have helped get the word out that recycling is available in the community."

In the five years since

the grants became available, Boyle County has applied four times and received more than \$400,000. Fechter has used the funds to turn her 4,500-square-foot recycling center into a facility that cranks out 900 tons of recyclables in a year.

In recent years, she has purchased big ticket items such as a horizontal baler, storage containers, a paper shredder and a sorting conveyor system, as well as smaller items like dock plates and loader scales. Strategically placed throughout the small center, these items have made the usage of the area's five convenience centers more accessible and the curbside pickup in Danville and Perryville easier to process.

"Even though Danville has decided to go a different direction with their recycling this year, the county has made huge strides in expanding its presence at Centre College, Bluegrass Technical College, Kentucky School for the Deaf,

Ephraim McDowell Regional Medical Center and other local schools and businesses," Fechter stated.

Believing that education is the key to a successful program, Fechter has used the grant funds earmarked for education and advertising in creative ways. For the 2010-2011 grant period, she bought commercials highlighting the importance of recycling that air before each movie at the Danville Cinemas 8. The movie theater group filmed the commercial that Fechter wrote, produced and even starred in, plus Boyle County owns the commercial.

"We wanted the recycling message to go out to as many in Boyle County as possible. We wanted others outside of the county who come to the movie theater to see the ease and value of recycling while learning what services are available," she said. "Eight movies showing several times

a day lets our message reach over 100,000 customers, which makes for the repetition, repetition, repetition needed to educate the public."

For the 2011-2012 grant period, Fechter hired American Music Concepts to create recycling jingles to air on the county's three radio stations. Fifteen to 20 jingles will be created in 15-, 30- and 60-second increments, making the jingles personal for the smaller communities within the county, specifically the expansion areas of Old Bridge Subdivision, Riverview Subdivision and Junction City.

"Once the jingles are made, they are timeless," she said. "With one pay-out of grant funds, the county is able to have 5,000 commercials airing on the radio from September through June."

Besides the commercials and jingles, Fechter hosts several 15-minute infomercials alongside a local celebrity where they answer frequently asked questions concerning recycling. People have stopped her on the street and told her how much they enjoy and appreciate the information she shares on the programs. She admits the programs are all part of her "saturation of the market" education campaign.

"People want to do the right thing, but you need to make it as effortless as possible," Fechter points out. "Once you start recycling, you just can't throw that plastic bottle away. You realize you are assisting in the healing of our planet—you take ownership."



*Boyle County Solid Waste Coordinator Donna Fechter (center), shows Magistrate Jack Hendricks (left) and Division of Waste Management's Tom Heil the recycling center's newest purchase, a sorting conveyor system.*  
DWM photo



# You can't judge a tree by its cover

By Lynn True  
Division of Forestry

**M**ost people are not aware that many of the trees and forests in our communities are in a general state of decline. This decline is somewhat complex and has a specific niche in the field of forestry known as forest health. The health of a forest can be influenced by factors ranging from wildfire, storm damage and urbanization to insects, disease and competition with invasive plants. Some of these causes can be prevented, while others are beyond our control. Nevertheless, it is possible to restore damaged trees, slow the spread of invasive plants and insects, treat disease and otherwise, increase forest health and resiliency. In fact, the best way to achieve forest health is through education. Anyone with a vested interest in trees should know how to identify the signs and symptoms of a growing number of forest health threats.

When looking at trees, the first thing to remember is to never judge a tree by its cover. Although a tree may appear healthy, there may be underlying problems. A tree is assessed not only by its leaves and buds, but by twig growth, trunk deformity, growth of fungal bodies on the trunk and evidence of insect activity among other things. By answering the questions in the following checklist, you can learn how to assess the health of your trees or forested property. Recommendations are also made to help you restore damaged trees and return problem areas into a healthy forest.

*Periodic fertilization, pruning, watering during dry periods and preventing insect damage are essential.*

## Trunk and large limbs

**Q: Are there holes, cracks, cankers, fungus or other signs of decay on the trunk? Are there swollen or discolored areas or sap oozing from the tree?**

**A:** If wounds are found on the tree trunk and larger limbs, then the potential for secondary fungal invaders or boring insects is much greater and, ultimately, can cause the tree to die. Wounds on a tree trunk may be caused by weather, fire, lawnmowers, weed trimmers, pets, wildlife and a variety of other environmental and human-caused factors. Wounds provide an entrance for insects and wood-rotting organisms like fungi. Insects that bore into trunks and branches interfere with sap flow and ultimately weaken the tree structure. One method of controlling further spread of insects and fungi is to remove branch stubs and prune cankered limbs.

## Leaves and buds

**Q: Is the foliage unseasonably brown or yellow? Are the leaves wilting, small or abnormally shaped?**

**A:** If tree foliage turns yellow or brown out of season, your trees may be infested by insects. It is important to realize, however, that most tree problems exhibit a set of characteristic symptoms, not just one. Failure to evaluate the full range of symptoms can lead to a misdiagnosis. For example, wilting can be from a lack of moisture, root injury, soil contamination, insect feeding, soil compaction or fungal pathogens. Likewise, both drought and excessive fertilizers can cause leaf edges to curl or turn brown, and either too much or too

little water can cause leaves to turn yellow. If an insect infestation is determined to be the cause, then every effort should be made to prevent the insect from spreading to other trees—not only to trees in close proximity, but to all trees. Some trees with minor infestations can be treated with insecticides or salvaged through other management options; however, if the tree can not be saved, then proper removal and disposal will be required to prevent further infestations. Many invasive pests are being spread to new areas by transporting firewood, logs or other contaminated wood. Therefore, one of the most important things we can do to protect trees is to stop moving firewood or wood materials that may be infested.

## Shoots and branches

**Q: Is there a reduction in shoot growth or is the canopy thinner than it used to be? Are the branches shortened, deformed or dead?**

**A:** If twig and branch mortality is evident, then the tree may be in the early stages of canopy dieback. Dieback refers to the dying-back of shoots and branches from the tip downward. As dieback progresses, an overall thinning of the crown is evident. Dieback is a complex condition, which sometimes can't be attributed to any single factor. Although there are many factors, root and soil disorders are the most common causes. Dieback can best be controlled through preventing the occurrence of stressors like low soil nutrients, drought and insects.

## Roots

**Q: Do roots appear to be healthy or rotten? Do roots have room to grow and spread, and is the soil compacted or disturbed?**

**A:** If roots are found to be discolored, rotten or compacted without any room to

*Continued on Page 11*



### *Emerald Ash Borer (EAB)*



- Native to Asia, this beetle has killed or infested tens of millions of ash trees in forest, rural and urban areas since its discovery in Michigan in 2002. EAB was found in Kentucky in May 2009.
- Adult EAB are elongate, slender and have metallic green wing covers.
- Adult EAB feed on ash foliage; however, larvae are far more destructive as they tunnel through the bark and into the phloem and cambial regions leaving serpentine galleries in the outer sapwood.
- D-shaped exit holes 3 mm to 4 mm in diameter are a sure sign of infestation.
- For more information, visit <http://pest.ca.uky.edu/EXT/EAB/welcome.html>

### *Hemlock Woolly Adelgid (HWA)*



- HWA is a small, aphid-like insect native to Asia that infests eastern and Carolina hemlock trees. The insect was first reported in the eastern United States in 1951. By 2005, it was established in 16 states from Maine to Georgia. Since 2006, HWA infestations have been found in 19 counties in Kentucky.
- HWA is tiny, less than 1/16 inch long, and varies from dark reddish-brown to purplish-black. As it matures, it produces a white, wool-like covering to protect itself and its eggs. This 'wool' found on the underside of hemlock needles is a sign of infestation. HWA feed on stored starches in twigs at the base of the needles.
- For more information, visit <http://na.fs.fed.us/fhp/hwa/>

### *Asian Longhorned Beetle (ALB)*



- ALB is an invasive beetle first discovered in the United States in 1996 in the Chicago area. Efforts to control the beetle have taken place in Illinois, Massachusetts, New Jersey and New York. It was found in Bethel, Ohio as recently as June 2011. The close proximity has forestry officials concerned about the potential for ALB to spread to Kentucky.
- ALB attacks maples, horse chestnuts, poplars, willows, elms, mulberries, black locusts and birch. It kills trees while in the larvae stage by tunneling into large branches and the trunk.
- Infestations can be identified by the perfectly round, dime-sized exit holes. Adult beetles are easily identified by their large, shiny black body (1 to 1 ½ inch long) with white spots and banded antennae that span the length of their body.
- For more information, visit <http://www.beetlebusters.info/>

### *Thousand Cankers Disease (TCD)*



- TCD is a fungal infection and canker formation caused by a tiny bark beetle known as the Walnut Twig beetle. The beetle burrows into twigs leaving galleries and an entry for the fungus to spread. TCD occurs in eight western states and was recently confirmed in the east in Tennessee.
- The three major symptoms of the disease are branch mortality, numerous small cankers on branches and the bole, and evidence of tiny bark beetles.
- For more information, visit <http://thousandcankerdisease.com/>

*Background photo by Michelle Shane, Division of Water  
All other photos provided by the Division of Forestry*



# Flooding no match for Fultz and crew *Continued from Page 2*

they started contacting neighboring county utilities to arrange for backup supplies,” said Roney. “The important thing is that they were communicating well and working together to make alternative plans.”

MCWD, which also purchases water from West Liberty Water, was particularly vulnerable because West Liberty would be unable to provide for all of Morgan’s water customers.

“Dan Canafax and I met with Morgan County Judge-Executive Tim Connelly to go over what was going on at the plant and the potential impacts to the system,” said Fraley. “If the worst happened and the plant went out of production, 845 customers would be without water within 18 to 24 hours. But, they already had a plan for keeping the school open using fire trucks for the sanitary water and supplying bottled water. They were also bringing the county emergency management up to speed, anticipating that the situation would likely last for several days.”

Predictions for continuing rain were correct. The lake rose another 4 inches in the area of the vault, but the pump continued to work and all the systems remained full.

By April 25, the lake water level was 14 inches over the vault. With more rain in the forecast, Fraley began working with MCWD plant operator Steve Pelphrey and his crew to explore the possibility of revving up an old, low-volume pump station that had been shut down five years earlier.

“You just have to look at all the options in the area in an emergency situation such as this,” said Fraley.

Ultimately, the sump pump failed, causing the limit switches to short out and the valves controlling water flow to the plant to close.

Fultz to the rescue.

“Jeff went down there and spotted two guys turkey hunting from a canoe and persuaded them to ride him over to the intake structure,” said Canafax. “He did whatever he could to keep those pumps working.”

Fultz was able to bypass the switches at the control panel, allowing the valves to operate again and the sump pump to resume pumping.

By May 9, lake levels finally began to fall, thanks in part to Mother Nature and in part to water releases by the U.S. Corps of Engineers, who own and operate Cave Run Dam. The dam, completed in 1973, was built to control water in an 826-square-mile drainage area. Floodwater is stored in the lake until downstream rivers and streams have receded enough to safely

begin releasing the stored water at a rate that will not endanger lives or property.

“You can’t complain that the dam was doing what it was designed to do, but we definitely had a challenge on our hands,” said Fultz. “I appreciate the extra efforts of my staff, Dan Fraley and Dan Canafax, and the other Division of Water officials who helped us through this crisis.”

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## *You can’t judge a tree by its cover*

*Continued from Page 9*

*grow and spread, then the tree will be more susceptible to forest health threats. Internal root tissue that appears brown often indicates dry soil conditions or exposure to toxic chemicals. Black roots usually reflect too much water in the soil or the presence of root-rotting organisms. Root and soil problems are among the leading causes of urban tree decline and death; therefore, careful planning in an urban setting is essential for healthy trees. Planting the right tree in the right place will ensure that the soil and moisture are adequate and that power lines, buildings and construction are avoided. Roots should be protected from construction, compaction by vehicles and lawnmowers, de-icing salts that leach into the soil, and low or excessive soil moisture.*

### *Surrounding area*

**Q: Is there a diversity of trees in the area and do the trees of the same species appear to be healthy or unhealthy? Is there known insect infestation in the area? If so, is the area under quarantine for transporting a particular tree species?**

*A: If the trees in your community have poor species diversity or an infestation or disease has been identified in nearby trees, then your trees will certainly be vulnerable. Nearby diseases or insect infestations may inflict your trees without preventive action. Additionally, forest diversity, in terms of size, species, shapes and layers is desirable. Variety in size means a healthy mix of trees by age and variety in species helps to reduce loss due to harmful insects or disease. Similar to a monoculture in agriculture, a pest population can explode in a stand of trees with little diversity. It is also important to remember that certain pests are regulated through quarantines, and areas under quarantine restrict the transportation of firewood, lumber or any infested “host” tree or material.*

By working through this check list, you can avoid many tree problems by providing proper care and protecting the tree from injury. While these measures can minimize stresses that lead to problems, it is not possible to avoid every threat to a tree’s health. Unfortunately, Kentucky’s trees have come under the attack of Emerald Ash Borer and Hemlock Woolly Adelgid. Moreover, the threat of Asian Longhorned Beetle and Thousand Cankers Disease is as close as across the state line.

If your trees or forested area appear unhealthy, contact your local certified arborist, state service forester or extension agent who can help you diagnose the problems and provide advice on possible treatment.

The health of our forests ultimately lies in our hands, and with nearly 12 million acres of forestland in Kentucky no one person can watch it all. For more information and to locate a state forester or a certified arborist in your area, visit <http://forestry.ky.gov> or <http://www.isa-arbor.com/faca/findArborist.aspx>.





# The benefits of environmental site assessments

By Herb Petitjean  
Division of Compliance Assistance



**TOP LEFT:** Examining a soil sample.  
**TOP RIGHT:** Checking an abandoned drum.  
**ABOVE:** Setting up a geoprobe to take soil samples. Photos by DCA

I remember the phone call. The man was panic-stricken. He had just bought a piece of property at an auction when another developer came up to him and asked, "Why did you buy that piece of contaminated property?" The first thing I had to do was to calm him down, and then we could discuss how to move forward.

In this particular case, the property wasn't highly contaminated, and it was later successfully developed. However, this is not always the case. Either way, a prospective property owner can avoid a lot of grief by getting a proper site assessment.

An environmental site assessment (ESA) can determine whether there is actual contamination or if a property is clean. If there is contamination, an assessment can find out the severity and help determine the cost to address the issue. Furthermore, it is an important step in establishing bona fide prospective purchaser liability protection.

A Phase I ESA, also known as All Appropriate Inquiry, is essential before acquiring a property, whether by purchase or donation. The assessment is conducted by an environmental professional and must meet certain criteria. It includes a review of pertinent historical and governmental records, interviews with individuals familiar with the property and a visual site inspection.

If a Phase I ESA identifies any environmental concerns, a Phase II ESA may be conducted that consists of sampling to determine if there is actual contamination.

To help local governments and non-profits redevelop abandoned properties, the Kentucky Brownfield Redevelopment Program offers a limited number of free assessments each year. The program takes applications throughout the year and generally conducts them on a first-come, first-served basis, though the program works to accommodate time-critical projects. In addition to Phase I and II assessments, the program also provides a list of options to address any contamination and a rough estimate of the costs. The assessments are key to being eligible to apply for federal cleanup grants. Details about this assessment program can be found at <http://dca.ky.gov/brownfields>.

Private firms that need an assessment can either partner with an eligible, local entity or hire a consultant. A list of consultants can be found on the Kentucky Pollution Prevention Center website at <http://kppc.org>. Note that inclusion on this list is not a certification or endorsement of the vendors. This list should be used as a starting point for finding consulting firms. Conduct the same due diligence as you would in entering into any contract.

Just because a property has environmental issues doesn't mean that you should automatically reject it. In many cases, the concerns can be addressed simply, with some tax incentives available to help. However, it is important to get good information up front. It is always better to have a conversation about a contaminated property before you buy it, rather than afterwards.



# Conservation partnership developed amid disaster

By Katrina Beckley and Pam Williams  
Division of Conservation

This summer, many counties experienced extreme weather that wreaked havoc across the Commonwealth. Properties were flooded, creek banks suffered excessive erosion and debris was scattered in the wake of wind and rain. These weather events caused more damage and destruction than many county and city municipalities could deal with on their own without creating an economic hardship.

Consequently, many counties received disaster declarations and with them gained eligibility for funding assistance through the federal Emergency Watershed Protection Program (EWPP).

Since January 2009, the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), Kentucky Division of Conservation and local conservation districts have implemented more than \$30 million statewide in EWPP funds to help communities recover from natural disasters.

The EWPP, authorized by Congress and administered by the NRCS, provides technical and financial assistance to preserve life and property threatened by debris, erosion and flooding. Assistance can be provided for debris removal (broken, hanging and undercut trees) or impending debris along streams, creeks or bridges. Help is also available for severe erosion along stream banks that pose a danger to houses, nonfederal roads and other infrastructures.

The EWPP requires a local sponsor, such as a fiscal court, city council or conservation district, to submit a letter of request to the NRCS requesting EWPP assistance. The sponsors provide the legal authority to do the repair work, obtain necessary permits, contribute in-kind funds and maintain emergency measures. Up to 75 percent of the construction cost may be authorized with the remaining 25 percent coming from the local sponsor. Sponsors must enter into a project agreement with NRCS, and much of the repair work must



**TOP:** Streambank erosion in Carter County caused by a severe storm.

**BELOW:** Restoration from Emergency Watershed Protection Program funding assistance.

Photos courtesy of Melodie Bush, Carter County Conservation District



meet specific time frames.

“The EWPP partnership between NRCS, Division of Conservation and conservation districts may be one of the most valuable services provided to counties that suffer enormous repair costs following severe storms,” said Steve Coleman, director of the Kentucky Division of Conservation.

Partnering agencies have trained personnel from conservation districts to work as inspectors for many of the local EWPP projects. As a result, a pool of qualified

and local technicians work to ensure that standards and specifications are met during repair of project areas.

Once again, another Kentucky conservation partnership has managed to address resource concerns and preserve life and property effectively and efficiently amid disaster declarations when communities and local units of government depend on our assistance even more.





## The Green Building 'LEEDS' by example

By Mary Jo Harrod  
Division of Compliance Assistance

The Green Building, a KY EXCEL member in Metro Louisville, is that city's first commercial building to achieve platinum LEED (Leadership in Energy and Environmental Design) certification and is Kentucky's first Platinum Adaptive Reuse Project. The award-winning renovation of the 115-year-old former dry goods store is breathing life back into the city's long-distressed East Market Street District.

When owners Gill and Augusta Holland purchased the building, they made the decision to go green. Rehabilitation of the historic building included resuscitating the structural masonry shell and infusing it with a modern core, including a 40-foot-high lobby, expansive natural lighting, ecofriendly materials and renewable energy systems, as well as extensive solar power, geothermal wells and recycled denim insulation.

"Throughout the building, we used regional materials including low-emission paint and coatings; skylights in surrounded areas to allow natural light and reduce the need for electricity; drought-tolerant landscaping with rainwater recapture; recyclable content in all materials and steel framing; the original stamped tin ceiling; construction pollution prevention and waste management; water efficiency and recycled and reused materials," says Stephanie Brothers, director of marketing and events for The Green Building.

The design of The Green Building made natural daylighting a major priority. There are large windows and skylights throughout the space. In some places, panes of glass replace what would have been interior walls, allowing light to bleed through from one room to another or even one floor to another. That design, in tandem with the daylight harvesting system (a series of photovoltaic sensors throughout the space monitoring levels of natural light, which in turn control the lights), means workers use very little artificial light in their offices during the work day.

The majority of the exposed wood is original to the structure. Wood was removed, corn-blasted (more environmentally friendly than sandblasting) and retrofitted to become flooring or support beams. The exposed brick and mortar walls were also corn-blasted. Most of the new wood that was brought into the building is Sustainable Forestry Initiative wood, which was collected only from certified sustainable forests.

Near the elevators are 'mineshaft' cinder blocks made of slag and fly ash, byproducts of coal production, which is an example of giving waste products a new purpose.

A photovoltaic 15-kilowatt solar power system with 81 solar panels collects enough energy to put power back into the grid. The green roof aids in stormwater retention and

**LEFT:** Wood was removed, corn-blasted and retrofitted to become flooring and support beams. **BELOW:** A 'green wall,' was incorporated into the renovations. DCA photos



### New KY EXCEL members

For information about Kentucky's voluntary environmental leadership program, call 1-800-926-8111 or visit <http://dca.ky.gov/kyexcel/>.

#### Advocate

ECO Engineering LLC—Cincinnati  
Franklin County Career and Technical Center—Frankfort  
Good Foods Co-op—Lexington  
Grimes Recycling and Shredding Service LLC—London  
KCTCS System Office—Versailles  
Kentuckiana Chapter of Hazardous Materials Managers—Louisville  
Kentucky's Colleges and Universities Recycling Coalition—Richmond  
Lloyd Keyser—Lexington  
Louisville Convention & Visitors Bureau—Louisville  
Megan Slusarewicz—Lexington  
Natalie Cooke—Lexington  
One World Clean Energy Inc.—Louisville

#### Leader

U.S. Penitentiary Federal Bureau of Prisons—Pine Knot  
Cooper Standard—Mount Sterling

#### Partner

Richmond Auto Parts Technology Inc.—Richmond

#### Master

Dynacraft, a Paccar Co.—Louisville

*Continued on Page 15*



# Green Bank of Kentucky *Continued from Page 3*

to lead the nation in progressive action on energy reduction and savings.”

## Green Bank of Kentucky's funded projects

- **Kentucky Department of Education (KDE)**—in January 2010, the KDE became the first recipient of a Green Bank of Kentucky loan. Nearly \$1.3 million was used to make improvements and implement energy conservation measures at the Kentucky School for the Blind in Louisville, the Kentucky School for the Deaf in Danville and the Future Farmers of America Leadership Training Center in Hardinsburg. The project employed advanced technologies to improve energy efficiency that included lighting system improvements, equipment control systems, mechanical system improvements and efficient dishwashing systems. With the energy conservation measures in place, KDE will save nearly \$140,000 annually from a reduction in utility costs.

“With the support of the Green Bank loan, [these] energy efficiency projects can be fully realized...[and] will spur our school systems to develop their own energy-saving enterprises,” said Education Commissioner Terry Holliday.

- **Kentucky Educational Television (KET)**—in November 2010, KET in Lexington was awarded more than \$1.8 million. With the low-interest loan, KET implemented updates that included high-efficiency boilers along with an innovative heat recovery system that transfers heat generated in the studios and server rooms back into the heating system; state-of-the-art heating, ventilating and air conditioning (HVAC) controls; high-efficiency light fixtures and occupancy sensors; and new water fixtures estimated to reduce annual water usage by approximately 50,000 gallons. Combined, these and other energy-saving measures will cut KET's annual energy consumption nearly in half.

“While we fully anticipated there would be several areas in which to address energy efficiency at KET, the projected savings of these improvements are far greater than any of us could have hoped for,” said Shae Hopkins, KET executive

director and chief executive officer. “We are extremely grateful to the governor and this program for presenting the opportunity to do our part for both the environment and the economy. Now, more of our resources will be directed toward the valued services we provide to Kentucky homes and classrooms.”

- **Old Capital Annex and state fleet garage**—retrofits are expected to increase the energy efficiency of these Frankfort complexes by 20 to 30 percent. Updates included spray-on foam insulation and energy-efficient lights in the fleet garage. New controls and a more efficient airflow system in the Old Capital Annex were also installed. The project used \$114,000 and took six months to complete.

- **Kentucky Department of Veteran's Affairs (KDVA)**—the KDVA received \$2.2 million, which was used to improve energy usage at the Thomson-Hood Center in Wilmore, Paul E. Patton Eastern Kentucky VA Center in Hazard and Joseph “Eddie” Ballard Western Kentucky VA Center in Hanson. Improvements to the

facilities included lighting retrofits, installation of low water-consumption toilets, high-efficiency water source heat systems, chemical rinse systems on existing dishwashers that eliminate hot water rinse cycles and an ozone laundry sanitizing system that minimizes hot water usage. The facilities also replaced their current HVAC systems with more efficient models and solicited bids from natural gas companies to lower their billing charges.

“Without the Green Bank loan, we could not have made these improvements,” said Ken Lucas, commissioner of KDVA. “Even though we knew the improvements would save us more than \$150,000 per year on utility bills, we could not afford the large up-front cost. The Green Bank is a huge benefit for Kentucky's veterans and every Kentuckian.”

To date, the Green Bank of Kentucky has loaned almost \$8.25 million to state facilities for energy efficiency improvements. For more information on the Green Bank of Kentucky visit [www.greenbank.ky.gov](http://www.greenbank.ky.gov) or <http://energy.ky.gov>.

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## The Green Building *Continued from Page 14*

runoff reuse, reduces urban heat island effects, improves air quality and insulates the building naturally.

A closed-loop geothermal system of 12 wells, dug 300 feet into the earth's surface, captures the coolness of the earth, which is converted into energy. A ventilation system that can exhaust hot air or collect and redistribute it, depending on the season and outdoor temperature, is another important feature of the building.

The building also has rain barrels that decrease stormwater runoff by at least 25 percent, and the overall discharge into the city's underground stormwater pipes is significantly reduced. Captured water is reused for irrigation and outdoor purposes.

The Green Building is a prime example of the potential to be sustainable that exists in older structures. Although vacant 20 years prior to their renovations, the Hollands project that they pay about 25 percent of what a structure this size would traditionally require. Additional costs to make the structure LEED-certified will likely be recouped in 10 years, but with depreciation, that could happen even sooner.

“We're a go-to venue for many environmental programs, from lectures and workshops to documentary film screenings. The rising interest in sustainability has brought us more event customers, and we regularly give interactive tours with students ranging from second grade through graduate school studying architecture, engineering or urban planning,” says Brothers. “Our KY EXCEL membership has also allowed us to speak and network with other EXCEL members across the state and present our project and mission to groups of current and potential EXCEL members. We are proud to be part of this environmentally and sustainability-oriented group.”





## No-cost changes result in high-cost savings

*Gas station saves money with sustainability steps*

By Mary Jo Harrod  
Division of Compliance Assistance



**TOP AND ABOVE:** Canopy and cooler lights remain off during daylight hours to save on utility bills. DCA photos

When Donald Jackson bought the former Gas n' Go station and food mart, now called Jericho's, in Frankfort in December 2010, he had already worked there for two years and knew a lot about the business. Then Natalie Cooke, an environmental program specialist from the Division of Compliance Assistance (DCA), contacted Jackson to offer assistance and provide tips to make the station more positive environmentally. Cooke was involved in DCA's recent study of gas stations, which focused on the facilities located in Franklin and Laurel counties. Funded by a grant from the U.S. Environmental Protection Agency, the purpose of the gas station study was to determine if environmental assistance provided to the stations would improve compliance rates and produce more sustainable behaviors than would be achieved through traditional inspections and oversight.

Jackson listened to Cooke's ideas and was surprised at the dramatic results he achieved after making a few no-cost changes at his facility.

"I was amazed that the young lady took the time to show me several things to change," Jackson says. "We checked the water heater, and I realized that we don't need to have a full tank of water, so I decreased the water level. The men's restroom had a water leak, a constantly dripping faucet, which I then had repaired. In the office, I began unplugging lots of things at night, like radios and lamps. Some of the lights in the coolers were shut off because customers could still see what was there. During daylight hours, there was no reason to use all of the canopy lights over the gas pumps. Now I use one section of lights instead of eight when it's daylight."

Not only does the facility sell gasoline, food and gift items, Jackson and his employees offer a complete, hot lunch five days a week, cooked in the store's kitchen. When the stove heats up the interior of the store, Jackson sometimes uses fans to cool the kitchen area. As with the office, anything not being used in the kitchen is unplugged. Since security lights are the only lights that are needed after hours, all cooler lights are turned off.

Cooke also suggested using eco power strips to decrease vampire energy usage in the store. As Jackson looked for other ways to save money and energy, he turned a few of the overhead lightbulbs off and found that it did not affect the amount of light in the building. From these no-cost measures came impressive results.

"At first, I didn't believe it when the bills came in," says Jackson. "My electric bill had dropped from \$1,300 a month to \$800. My water bill went from \$80 to \$54, so if you repair those leaks, you will see a difference."

Jackson is so excited with the rewards from his efforts that he is planning more changes for his station and food mart, such as recycling more than aluminum cans and switching all of his lightbulbs to CFLs.

"I appreciate Ms. Cooke for stopping by. I'm a believer now," he said with a grin. "Try these steps—they work!"



The 2011 summer wildfire season was severe throughout the south due to an ongoing drought prompted by La Nina and exacerbated by strong winds, unseasonably warm temperatures and low humidity. Wildfires threatened communities, destroyed homes, endangered the health and well-being of citizens and devastated forest land. Many of the southern states, faced with reductions in staffing, equipment and other resources, were forced to seek assistance from across the country. As a result, firefighters from more than 47 states, including Kentucky, helped combat the fires.

The Kentucky Division of Forestry (KDF) sent four engine strike teams to Florida, Georgia, North Carolina and Texas. Each engine strike team consisted of 10 firefighters, one strike team leader and five engines (4-wheel drive pickup trucks with 200-gallon water tanks and foam capabilities). The first team departed on June 14 for northeast Florida. The team was assigned to the Espanola Fire, the White Eagle Fire and the Little Haw Creek Fire.

The second and third teams were sent to Waycross, Ga., on June 21 and July 7, respectively. Both teams were assigned to the Sweat Farm Again Fire in southeastern Georgia near the Okefenokee Swamp. The fourth and last team responded to orders requested by the North Carolina Forest Service on July 22. The team assisted with the Juniper Road Fire in the southeastern part of the state.

In addition to the four engine strike teams, a public information officer, a receiving and distribution manager, an engine operator, an engine boss and three dozer bosses were sent to assist Texas and Georgia.

As the wildfire outlook improves for these southern states, Kentucky firefighters have returned home to prepare for the fall forest fire hazard season.

Matt Haywood, KDF Bluegrass District forest ranger, who was the engine strike team leader for the first crew sent to Georgia, commented that it was a privilege to assist other states and work with dedicated team members.



## KDF firefighters combat wildfires across the south

By Lynn True  
Division of Forestry

*KDF personnel who volunteer for compact detail are generally assigned to an area for 14 days; however, several of KDF's firefighters volunteered for more than one assignment this summer. \* Denotes two assignments.*

Chris Adams*	Matt Haywood
Dwayne Anderson*	Brandon Howard
James Armstrong	Adam McGuire
Matt Adkins*	Adam Michaels
Jerry Brown*	John Mink*
Jody Benningfield	Darren Morris
Jim Bryan*	James Morris
Michael Carter	Susan Nightingale
Tim Crowell	Kevin Radschweit*
Josh Frazier*	Luke Saunier
Haley Frazier	Chris Scott*
Michael Froleich	Jeff Smith
Sean Godbold	Jeremy Tackett
Sarah Gracey	Nick Valentine
Mike Hale	John Wethington
Nathan Hall*	Chris Wiedamann
Steve Hammond*	Floyd Willis
John Paul Hart	Dennis Woolard
	Brian Yeager

**TOP:** Engine Strike Team Leader Matt Haywood (left) and Luke Saunier, engine boss for Team 1 in Georgia, take a break from the heat and exhaustion of suppressing a fire. KDF photo

"I've been on fires in other southern states and the Georgia Forestry Commission has always been there assisting their neighbors; it was a privilege to assist them in their time of need," said Haywood. "I was extremely proud of the professionalism and dedication of the KDF personnel that I served with on this incident."

Kentucky has a long history of assisting other states with wildfire emergencies and is able to do so through the Southeastern Interstate Forest Fire Protection Compact. The compact is a group of 10 states that share skilled firefighters and equipment, and afterward reimburse those personnel and equipment costs. Member states help each other to the extent they can, depending on their own wildfire status.

Assistance from Kentucky is typically provided during the summer months because wildfire conditions are usually stable due to high humidity levels in our region. However, during the fall and spring forest fire hazard seasons KDF personnel are busy at home enforcing forest protection laws and suppressing wildfires.

Leah MacSwords, director of KDF, said that sharing resources is common outside of our own state's forest fire hazard seasons.

"We were fortunate to be able to share our resources with other states this summer, and we know we can depend on them reciprocating the favor during our own wildfire emergencies," she stated.

KDF is also doing more with less, and the ability to respond to wildfires and protect the forests and the safety of communities is under constant strain. Personnel trained in wildland fire suppression provide a critical need in times of emergency, and unfortunately, the dangers of their job are often overlooked. The deaths of four firefighters this summer (in Texas and Florida) are painful reminders of the loss of a KDF firefighter last season. These tragedies not only serve to remind us of the dangers facing firefighters every time they respond to a call, but to the public's need to support their efforts.



# Biologist discovers rare snail in Green River

By Allison Fleck  
Division of Water

The discovery of a rare, tiny freshwater snail living on the banks of the Green River in Hart County is one more indication of the astounding biodiversity of the central Kentucky waterway and the importance of protecting the Green River, said the Division of Water (DOW) scientist who made the discovery.

Ryan Evans, now an aquatic biologist with DOW, was working for the Kentucky State Nature Preserves Commission (KSNPC) last year when he found specimens of *Rhodacme elatior*, more commonly known as a Domed ancyloid due to the shape of its shell. Even though it had not been seen since the late 1800s, Evans thought the snail might possibly exist along a certain stretch of the Green.

"I knew the snail had been known to science in that locale of the Green River near Munfordville, and it was even described in the 1870s," said Evans. "In fact, a colleague at KSNPC, Ron Cicerello, suspected that he had collected a specimen in recent years. Unfortunately, it was lost during office renovations at the research university to which it had been sent for verification."

Evans remained intrigued about the little limpet and requested shell samples from the Academy of Natural Sciences in Philadelphia.

"I photographed the shell from every angle so I could become completely familiar with its appearance," said Evans. "The snail, which is an aquatic gastropod mollusk belonging to the family *Ancylidae*,



*dae*, can easily be mistaken for its more common relatives. In fact, you have to look at it under a microscope to identify it with certainty."

Evans explained that the type of limpet he found is particular about its surroundings.

"This limpet lives only in a very special habitat, partly because of its breathing system," said Evans. "This group of snails is actually lung breathing, meaning it brings air into its shell and performs a type of respiration by bringing the air into its body and extracting the oxygen. In the case of the freshwater limpets, they respire by absorbing oxygen directly across the body surface, which allows them to remain immersed in water at all times.

"Because of this process," Evans continued, "this limpet must position itself at the edge of a channel, in a riffle, at a specific angle on the bank. So, you have to know what you're looking for as well as where to look for it."

Evans added that the water quality

**ABOVE:** Conservationists consider the Green River the most biodiverse river in the state. Photo by DOW. **LEFT:** The fingernail-sized snail, *Domed ancyloid*, lives in habitats generally overlooked and often threatened by natural hazards. Photo by Ryan Evans

of the stream must also be very high for the snail to survive. Portions of the Green River are designated as a wild river, and are protected from development and unwise use.

"The Green River is known to have excellent water quality," said Evans. "The river flows mainly through rural areas, it is clean and unsilted, and it flows fairly naturally without obstructions."

Finding the snail actually did not take long on the day of discovery.

"I was collecting specimens of another species with a colleague, Paul Johnson, and decided to look for the snail where I thought I had seen it before," said Evans. "After about 45 minutes, I found the snail and was pretty sure it was a *Rhodacme elatior*. I collected only about 20 of them at the time because of their rarity."

Evans and Johnson sent specimens to researchers at the University of Michigan, where their discovery of the Domed ancyloid was confirmed. While snails may not seem as glamorous as bald eagles and blue whales, their presence in waterways is an important indicator of stream health.

Evans said he hopes the snail continues to thrive in the Green River.

"It's gratifying to me to have found a snail once thought to be extinct, but it's also somewhat depressing when I think of all the waterways we've already damaged and all the species we may have lost."



# Awards

## Landowners honored as Outstanding Forest Stewards

By Lynn True  
Division of Forestry

Three Kentuckians were recently honored for their stewardship of forest and land resources during the annual meeting of the Kentucky Association of Conservation Districts. The Kentucky Division of Forestry (KDF) annually presents the Outstanding Forest Steward Award to a forest landowner for his or her exceptional stewardship accomplishments.

Forest stewardship involves cooperative planning and management of natural resources in an effort to prevent loss of habitat and promote sustainability. Recipients are nominated by natural resource professionals from the Kentucky Division of Forestry, the Kentucky Department of Fish and Wildlife Resources or the U.S. Department of Agriculture's Natural Resource Conservation Service.

Dr. James W. Middleton from Hart County was selected as the 2010 Outstanding Forest Steward. Middleton owns more than 5,000 acres of land with 3,300 acres of woods. His family has practiced forest management on the property since the 1950s. In 1996, he was certified as a Kentucky Forest Steward after signing up for KDF's forest stewardship program, which provides free technical advice to landowners.

Over the years, Middleton has implemented numerous forest management practices, including planting more than 500,000 trees, converting over 600 acres of fescue field into warm season grasses and completing over 800 acres of timber stand improvement. Middleton also maintains five miles of access roads and trails and is currently restoring cedar glades to protect rare and endangered species. He has hosted numerous field days and is an active member in the Kentucky Woodland Owners Association, American Chestnut Foundation and the Black Walnut Council.

KDF also recognized Joseph Brannen and Rodney Givens as Outstanding Forest Steward state finalists. Brannen owns



*Dr. James W. Middleton (foreground), Hart County landowner and winner of the Outstanding Forest Steward Award, discusses forest management goals on his property with Central District's Chief Forester Robert Bean (right).*

Photo by KDF Forester Pam Snyder

and manages 112 acres in Mason County and has practiced forest stewardship on his property since 2006. He has planted nearly 7,500 trees, conducted timber stand improvement activities, created wildlife food plots, improved wildlife habitat and eradicated non-native, invasive bush honeysuckle.

Givens owns and manages a 626-acre farm in Butler County and has conducted forest stewardship activities since 1960. He was recognized as a Kentucky Forest Steward and certified as an American Tree Farmer in 1989. He has planted more than 40 acres of trees, conducted timber stand improvement activities, planted wildlife

food plots and warm season grasses and maintained several miles of access roads among other forest stewardship activities.

"Private landowners own the majority of forestland in Kentucky. In fact, 78 percent of forestlands in our state are privately owned; therefore, individuals like Middleton, Brannen and Givens play a significant role in conservation. Their accomplishments help sustain forest resources that are beneficial to us all," said State Forester Leah MacSwords.

Landowners interested in the forest stewardship program should call 1-800-866-0555 or visit KDF's website at <http://forestry.ky.gov>.

## AML alleviates drainage problems *Continued from Page 6*

"I look back on the project and I am very proud of what we were able to accomplish with the guidance from my superiors, the expertise from Smith Brothers and the patience of the landowners. I take great pride in my job knowing that at the end of the day we were able to help someone, actually several, in need."

"When you spend 10 months with someone, pretty much day in and day out, you really get to know that person," said Smith. "Stefanie has become like family to us. It is evident she truly cares about the work she does, and I am so blessed that she and the rest of AML came along when they did. My grandson now has a safe place to play, and my neighbors don't have to have their guests meet them at the end of the street anymore."

That is why AML staff work to protect the public from health and safety hazards caused by mining prior to 1982. Information about AML is available at <http://aml.ky.gov>.



## Kentucky water plant staffs honored

**By Allison Fleck**  
**Division of Water**

The operation staffs at three Kentucky drinking water plants have been named this year's outstanding performers by the Kentucky/Tennessee Section of the American Water Works Association.

The Outstanding Plant Operation Awards are given to five water treatment plant operations staffs in the two states, broken into three categories by plant size. Nominees are evaluated for exceptional performance in exceeding all federal drinking water standards and initiative to excel at the business of producing safe water for its customers.

- The Louisville System B.E. Payne Water Treatment Plant staff received the award in the category of producers of more than 10 million gallons per day (mg/d). The award cited the plant's exemplary operations in 2010, receiving the Phase IV Excellence in Water Treatment Award and ASCE Civil Engineering Project of the Year for its Riverbank Filtration Project. The Louisville Water Co. also earned the Outstanding Safety Award for reducing injuries and implementing new safety policies.

- The Prestonsburg Water Treatment Plant staff won in the category of 5-10 mg/d. Plant Manager Donald Compton gave credit to the good work of Plant Supervisor Phil Clark and his staff.

"They take pride in their jobs and it shows in the good water we produce," said Compton.

Plant staff are familiar with every nuance of the facility and do most of their own maintenance as opposed to contracting it out.

"We have good maintenance as well as a sound safety program," said Compton.

- Staff of the Pirtle Springs Water Treatment Plant, also known as Harding District 1, won in the category of 0-5 mg/d. General Manager Jim Bruce said his "motivated staff always does a great job treating water," but that the recently renovated plant and better technology make monitoring easier and more efficient.

"We now have state-of-the-art computerized diagnostic equipment that makes our job easier and more accurate," said Bruce.

"Selection for an award is a high honor, considering there are nearly 500 registered water systems in Kentucky," said Julie Roney, Division of Water drinking water coordinator. "These staffs should be proud of their accomplishments."

### Blanton named Operator of the Year

City of Cynthiana water treatment plant manager Todd Blanton was named 2011 Operator of the Year by the Kentucky/Tennessee Section of the American Water Works Association (AWWA).

The award is given to two operators across the section's territory, one in each state. With 2,105 licensed water operators in the state of Kentucky alone, receipt of the award is a high honor.

The AWWA recognizes water operators who have demonstrated exceptional performance in exceeding federal drinking water standards and initiative to excel at the business of producing safe water for customers. Nominees are graded on proficiency in management, plant performance and maintenance, knowledge of treatment plant operations and regulations, innovation and section participation.

Blanton said he is a big advocate of water quality.

"I want it to be good all the way to the tap, even if it isn't flowing through our distribution system," said Blanton.

The city of Cynthiana owns its own water treatment facility and supplies water to its own citizens and to the Harrison County Water Association.

"The beauty of the job is the variety," said Blanton. "Because of environmental conditions, you always have to make adjustments to the water treatment process. The plant is like a big machine, but it'll dance for you if you treat it right."

Blanton also has great faith in his skilled staff.

"They deserve this award as much as I do," he said.

"They make me look good."

## Parnell awarded for wildland fire prevention efforts

**By Lynn True**  
**Division of Forestry**

Kentucky Division of Forestry (KDF) Ranger Technician Ricky Parnell recently received the Robert E. Browning Jr. Award for his efforts to educate children and young adults about the dangers of forest fires. The award is given in honor of Robert E. Browning Jr., a South Carolina wildland firefighter who lost his life on Storm King Mountain, Colorado in 1994.

Parnell works in Metcalfe County and has been with KDF more than 11 years. Parnell fights forest fires, inspects timber harvest operations and conducts forest fire prevention education programs. He also works with residents, local officials and the media to help prevent and reduce the number of fires.

Leah MacSwords, KDF director and state forester, said, "Parnell is to be commended for his ability to relay such an important message to our communities. Educating our youth and encouraging them to become responsible citizens in protecting our forest resources could not be accomplished without the energetic work of field staff like Parnell."





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## Seedling nurseries: growing trees for healthy and productive forests



In Kentucky, the first signs of fall foliage begin to appear as early as mid-September and peak around mid-October. During this time, brilliant red, yellow and gold can be seen throughout the forest regions of our state, but their brilliance wouldn't be nearly as spectacular if it weren't for the dominating oaks in our woodlands. Along with White Oak, Swamp White Oak has the best autumn color of the various members of the white oak group, usually with crimson shades of fall color. Swamp White Oak (*Quercus bicolor*) is found throughout most of Kentucky, although it is not abundant in the southeast. It is a

frequent inhabitant of wet woods, swamps, wetlands and bottomlands; however, it is very drought tolerant and can be planted in soils that are dry in summer. For anyone interested in landscaping for fall color, Swamp White Oak is an excellent choice. It is one of 17 varieties of oaks available from the Kentucky Division of Forestry's seedling nurseries. This species, and nearly 50 other native species, are available now through early spring for planting during the dormant period. To obtain an order form, visit KDF's website at <http://forestry.ky.gov/statenurseriesandtreeseedlings/Pages/default.aspx> or call 1-800-866-0555.

### ***Just the Facts: Swamp White Oak (Quercus bicolor)***

- **Growth:** Swamp White Oak are densely oval, upright and symmetrical through middle age. As they advance in maturity, they become more spreading. Swamp White Oak may reach 70 feet tall by 60 feet wide at maturity, when found in the open.
- **Sites:** Swamp White Oak prefers rich, deep, moist to wet, poorly-drained, acidic soils, but adapts well to dry and average soils that are neutral to slightly alkaline in pH. It is one of the best hardwoods for wet soils. It thrives in full sun to partial sun and is found in zones 4 to 8.
- **Range:** Swamp White Oak occurs mainly in Iowa, Missouri, eastern Kentucky and southern Wisconsin east to New York, Pennsylvania, Connecticut and Massachusetts. In Kentucky, it is predominantly reported in watershed areas.
- **Human Uses:** Swamp White Oak wood is light brown, close-grained and heavy. It is used for furniture, cabinets, veneers, interior finishing and flooring, as well as for boxes, crates, fence posts, railroad ties, and beams and boards for general construction. The wood provides tight cooperage and was once widely used in making barrels and kegs.
- **Wildlife Uses:** Swamp White Oak provides cover for birds and mammals. The acorns are an important food for squirrels, mice, white-tailed deer, beaver, black bear and a variety of birds, including ducks and turkey.
- **Tree Trivia:** Native Americans and pioneers ate the acorns raw or cooked. Acorns have also been ground into a powder and used as a thickening in stews or mixed with cereals for making bread. Roasted acorns have been ground as a coffee substitute.