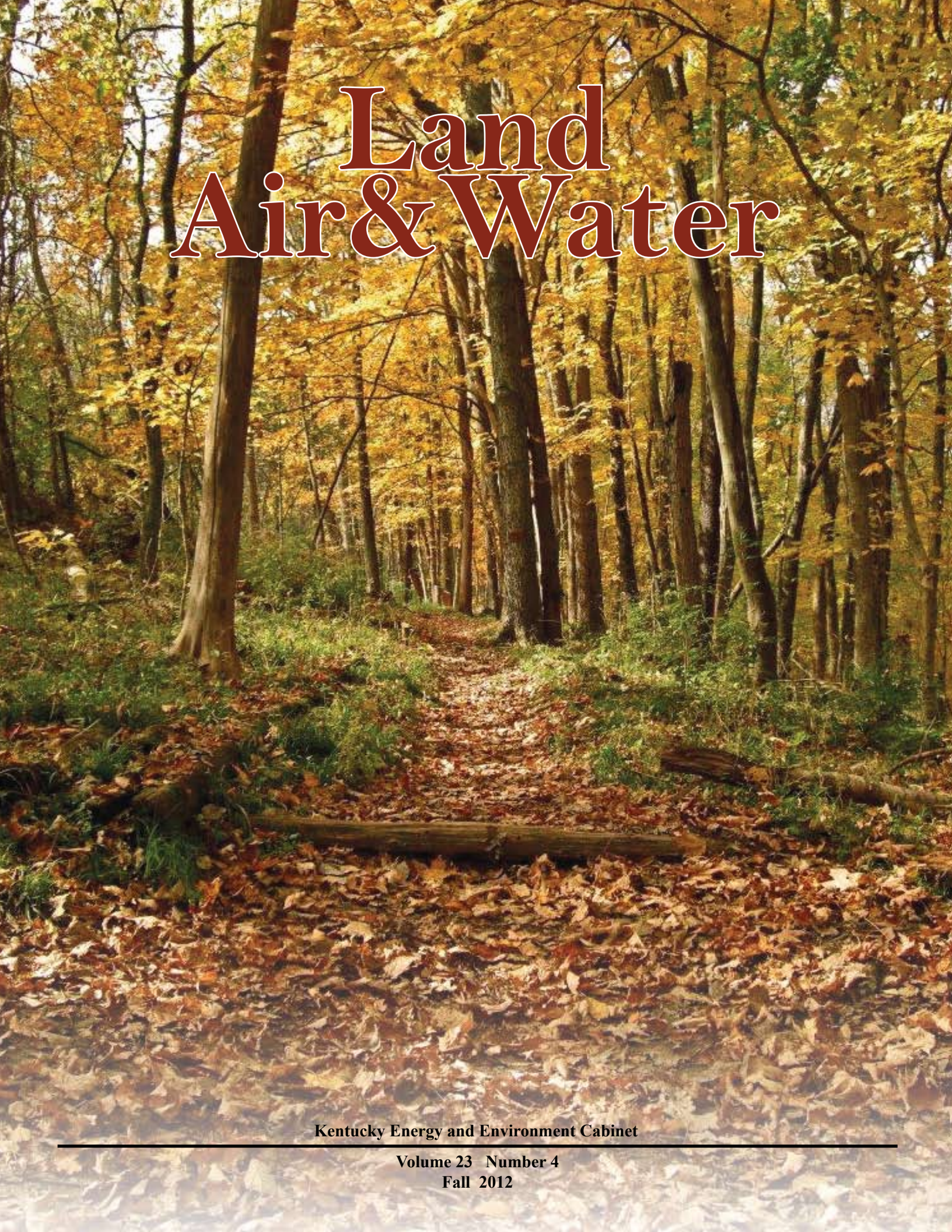


Kentucky Energy and Environment Cabinet

Volume 23 Number 4
Fall 2012

# Land Air&Water

*since 1988*

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## From the Secretary's Desk

The publication of this issue of *Land, Air, and Water* coincides almost with the four-year anniversary of the release of Governor Beshear's energy plan, *Intelligent Choices for Kentucky's Energy Future*. Therefore, I thought this would be an ideal time to provide some reflection on the plan itself and some observations on where we are today. When we were working on the energy plan during the summer of 2008, gasoline was around $4 per gallon; there was the expectation that Congress would implement some form of greenhouse gas legislation; and the anticipation that the new president would secure a national clean energy agenda.

The plan reinforced Governor Beshear's vision of using all of our energy resources in an environmentally sensitive manner to create jobs and economic opportunity within the state. Kentucky was among the first, if not the first state, to create an executive branch agency linking environmental and energy programs. There were some critics, who, in my mind, took a cynical view of such an approach and who didn't think "balance" between energy and environment is a laudable or achievable goal. However, it's what we have to do. To dissociate the two is just not realistic.

We in Kentucky, like people in most states, try to play to our strengths. Kentucky has abundant coal resources, and for practical purposes, we've used them. Other states with abundant coal resources have done the same, and states with abundant hydro have used that particular resource, and so on. Do we need to look at alternatives? Of course. And that is what we did with the energy plan. We wanted to look at ways to continue using coal, a resource that has provided reliable and affordable electricity for our own industrialized economy, and we wanted to look at the most effective, available alternative resources to diversify our overall energy portfolio.

In the intervening four years, we've gathered broad stakeholder interests to help us achieve many of the plan's goals. The Kentucky Climate Action Plan Council released a report that contains policy recommendations that, if implemented, would help Kentucky reduce greenhouse gas emissions in a cost-effective manner. Read the report at http://www.kyclimatechange.us/ewebeditpro/items/O122F24984.pdf. We've invested more than $68 million into energy efficiency programs and projects that have touched Kentucky's schools, homes, businesses, communities and government facilities and made a positive impact. These efforts have leap-frogged Kentucky's economy forward while helping to lower energy bills, enhance reliability and improve the environment.

Another initiative, Stimulating Energy Efficiency in Kentucky, focuses on removing barriers to meet a goal of reducing energy use through efficiency in Kentucky's electricity sector by 1 percent annually. Not only does this goal complement the energy efficiency goal of the Governor's Energy Plan, but the case for energy efficiency is becoming ever more compelling as electricity rates climb. In less than a decade, Kentucky's electricity

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# Land Air&Water

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## Our Cover

A hiking trail within the 734-acre Raven Run Nature Sanctuary in Fayette County. Photograph taken by David Hargis, Division of Conservation.

*Part of the property was acquired with funds from the Kentucky Heritage Land Conservation Fund*
*http://heritageland.ky.gov*

# Features






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*Printed by Post Printing*
*Lexington, Kentucky*

# Surrounded by forest

## *Lake Lewman is shining example of a Firewise community*


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

Smokey Bear says 'only you can prevent forest fires,' and the community of Lake Lewman in northeast Rowan County has taken this to heart. Lake Lewman is one of 33 communities in Kentucky to achieve the designation of being a Firewise USA community recognized by the National Fire Protection Association. The area is not only secluded, it is surrounded by the Daniel Boone National Forest; therefore, becoming 'firewise' and implementing practices to prevent wildfire was a natural fit for this community.

Danny Blevins, director of Emergency Management Services in Rowan County, who also serves as the chair for the Northeast Rowan County Firewise Council and volunteers as a firefighter for the Route 337 Volunteer Fire Department, said the interest in becoming a Firewise community grew out of necessity and concern for the safety of firefighters and homeowners.

"The tragic event of the Island Fork Fire was the catalyst for our community's interest and involvement with the Kentucky Firewise program," said Blevins.

In 1999, a wildfire in northeastern Rowan County, known as the Island Fork Fire, claimed the lives of two firefighters—Kevin Rex Smith and Kenneth Allen Nickell. Both were members of the close-knit Route 337 Volunteer Fire Department and had responded to a wildfire approximately one mile south of the Lake Lewman area.

Since that time, the community has become very proactive about wildfire prevention, and in 2005 the Northeast Rowan County Firewise Council was formed. Through the council, local firefighters were trained through the Kentucky Firewise Program to conduct Firewise assessments. Community Firewise workshops were also conducted with assistance from the Kentucky Division of Forestry. One of the biggest success stories for the council is the Lake Lewman Association—a private residential area of approximately 40 homeowners who have been one of the most proactive communities in the area.

Through assessments, workshops, education and mitigation efforts, the benefits to the Lake Lewman community have been

***Continued on Page 7***

**TOP:** ***One of two dry hydrants installed in the remote Lake Lewman area.*** **MIDDLE:** ***(left to right) Danny Blevins, Northeastern Rowan County Firewise Council; Todd Chlanda, National Fire Protection Association; and Floyd Willis, Kentucky Division of Forestry, discuss implementation of firewise practices.*** **BOTTOM:** ***One of many homes in the Lake Lewman Association showing "defensible space."***
Photos by Lynn True

# Sag Hollow Golf Club

***Course a stroke of good fortune, creating jobs and homes for the community***

Story by **Mary Jo Harrod, Division of Compliance Assistance**
**Photos courtesy of Lukas Hughes de Saint-Clair, Sag Hollow Golf Club**


Owsley County is a rural area with 4,800 residents and little industry. For that reason, a group of community leaders in Booneville thought economic development was needed to bring jobs to their town, giving residents an opportunity to work in the town where they live—so they decided to build a golf course. Despite some opposition to the project, the group formed a 501C nonprofit economic development corporation and began their search for land. In 2004, the site they chose was a brownfield—a surface mine that had been abandoned in the 1970s. Brownfields are often old factories, former gas stations, mine-scarred lands and dry cleaning establishments that are abandoned or underutilized due to real or perceived environmental contamination. The group spent the next three years cleaning up the land that would become Sag Hollow Golf Club. Two community-minded institutions in Owsley County, Farmers State Bank and the Peoples Rural Telephone Cooperative, subsidized the project.

Opened in 2007, the Sag Hollow community consists of 125 acres, 50 of which make up a nine-hole golf course that has nine championship tees and eight shorter tees. When 20 home lots surrounding the course were offered for sale, all were sold in less than three hours. More home lots will be available for sale this fall.

Thousands of volunteer hours were donated to clear brush, move rocks and cover the shale with dirt for the grass to grow and to allow irrigation. Two ponds were excavated to create a water source, and a few trees had to be cut.

"The golf course is an ongoing project," says Don Hughes, general manager of the course. "Weather is a constant variable, and you have to babysit the course. We are in a constant state of improving or maintaining the property. Doing research about the proper design of the course to minimize maintenance will save money."

Green No. 3 had to be rebuilt, costing $20,000. Some sand traps had to be reconstructed, and it was necessary to watch the runoff when it rained that sent water running down the hill onto the greens. These are things that will be taken into consideration before construction begins on the next nine holes.

"This is another form of recreation and exercise," says Eric Mason, director of golf, Owsley County native and former Kentucky state amateur golf champion. "We also get a lot of beginners, including 30 kids that we once had in the youth league. The local high school uses the course, and the regional Class A golf tournament is held here. In June, 62 people from around the state came for the tournament. Our weekly golf scramble usually brings 40 people here."

What once was the remains of a strip mine is now a golf community, bringing money, people and jobs into the county, especially Booneville.

Six homes have been built on the property, and two of the families moved there from other counties. Depending on the season, the club employs four to seven people and has 50 members.

"The land was valued at $150,000 when we bought it," says Hughes. "Now the estimated value of the golf course is $1 million, in addition to the six homes having an estimated value of $1.2 million.

"No one understands what Sag Hollow Golf Club has meant to the community," continues Hughes. "It has created extra jobs for local people to build houses and work at the club. They have grabbed the opportunity to work here and stay in their home county."

During construction, there were a few citizens who had doubts about a golf course being an asset to Booneville, but the golf community was built for economic development, and as time

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# Treatment plant operators

## *Front-line guardians of public health and clean water*

By **Mary Jo Harrod**
**Division of Compliance Assistance**

What is invisible until it stops working? A treatment plant. "That's a joke among treatment plant operators since our jobs receive very little publicity unless there is a major problem," says Ruth Lancaster, who worked as a wastewater operator and is now a production supervisor for the Louisville Water Co. (LWC).

LWC provides water to more than 300,000 customers in its water system and serves more than 800,000 persons daily through its wholesale customers. Founded in 1854, it is one of the oldest water systems in the state and the largest at this time.

Though there is little publicity about their importance, well-run treatment plants are absolute necessities for a healthy population. The plants are run by operators staffing the facilities every day of the year—holidays, nights and weekends—and are the front-line, hands-on guardians of public health.

From her own experience as an operator and a supervisor, Lancaster knows that drinking water and wastewater operators have a variety of duties. They perform chemical analyses, answer phone calls from residents with questions, do minor maintenance and troubleshooting and predict how incoming or outgoing flow will change over the next day or two. As they make the plant rounds each day, walking past every basin and piece of equipment, they must be aware of abnormalities, such as cloudy basins, noisy equipment and unusual odors that could indicate problems.

Operators also collect samples, run lab tests, adjust flows and check chemical inventories, deciding when to order more supplies. Running out of chemicals would force a facility to close, create a public health emergency and incur violations and fines from state regulators.

"I enjoy being an operator," said Pam Booher, also of the Louisville Water Co. "This job requires a lot of problem solving, logical thinking and troubleshooting. It's something different every day."

### What are the requirements for an operator?

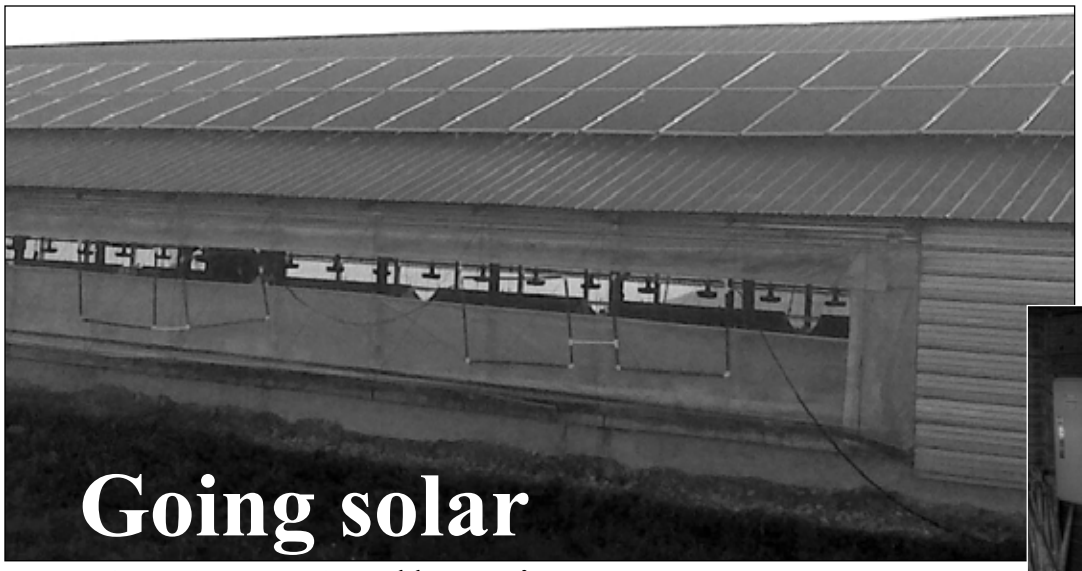
Becoming an operator is still one of the few careers a person can choose without college training, although college experience is useful. All new employees must have a high school diploma or GED. To become the lead operator, an employee must have the Class IV-A license, meeting experience and education criteria established by the state's Energy and Environment Cabinet's Division of Compliance Assistance. Operators are sent to state certification schools, which are helpful in preparing them for the certification exam.

Being an operator has its pros and cons. Pros include job stability and the fact that operators are usually not reassigned to another city after being hired. The job also offers interaction with people, as well as alone time, indoor work and outdoor work—something new or different every day. There is also the psychological reward of giving back to the community and the environment. The downside? Smaller facilities can start employees out as low as $9-10 an hour. Gaining Class III or IV certification can bring an experienced operator up to $20-30 an hour in larger cities.

"When I did work as a wastewater operator, I found that I enjoyed working in a job that improved the environment and people's health and required no selling," says Lancaster. "After all, who doesn't want clean water? Being able to see concrete results of my work (clean water leaving the plant) makes water or wastewater operation a very fulfilling career.

"Overall, I think this job could be a good fit for a lot of young people. I take pride in the trust our community has placed in me and my coworkers."

**ABOVE LEFT:** ***Operator Pam Booher is collecting turbidity samples from filters. Those sample cells (in sample vials) are inserted into the laboratory turbidimeter for analysis.***
**ABOVE RIGHT:** ***Assistant operator Alex McLanahan adjusts the amount of ammonia fed during the treatment process.*** Photos courtesy of the Louisville Water Co.



# Going solar

## An 'eggs'cellent investment

**LEFT***: The Van Metre poultry house with solar panels on the southside roof.*

**BELOW***: Danny Van Metre stands beside his solar meters.*
Photos by Bill McCloskey, GOAP

*On-farm energy efficiency grant provides helping hand to Kentucky farmer*

By **Eileen Hardy**
**Department for Energy Development and Independence**

Poultry growers use a lot of energy on the farm, often second only to dairy operations. With the price of fuel and utility costs continually escalating, more farmers are seeking alternate ways to save energy and money.

"There are many energy-efficient investments that can make farming operations more profitable by using less energy. By controlling energy costs, our farmers can save significant revenue and can reinvest these resources in their families and operations," said Angie Justice, Governor's Office of Agricultural Policy (GOAP).

In 2009, Gov. Steve Beshear announced availability of federal stimulus funds for on-farm energy efficiency improvement in Kentucky. On-Farm Energy Efficiency and Production Incentive grants were created as a result of a partnership between the GOAP and the Kentucky Department for Energy Development and Independence with funding from the American Recovery and Reinvestment Act (ARRA) through the U.S. Department of Energy. In just over two years, the program helped provide approximately $1.3 million for energy-efficiency upgrades on farms throughout the state.

As the ARRA grants came to a close this year, the Kentucky Agricultural Development Board was so impressed with results of the On-Farm Efficiency project, the board voted to approve a $2 million program using Kentucky Agricultural Development Funds.

"This is a wonderful way to continue a legacy program of the American Recovery and Reinvestment Act and extend a helping hand to additional farmers who want to improve energy efficiency or production within their operations. The benefits of these projects, and future projects, will be recognized for generations to come," said Roger Thomas, executive director of the GOAP.

Danny Van Metre, Kentucky poultry farmer and owner of Valley View Farm, was among the first to take advantage of the new $2 million state grant program. His 93-acre farm in Grayson County includes a poultry breeder house, beef cows and calves, and hay.

The Van Metre family provides all of the labor needed on the farm. Every 10 to 11 months a new flock of birds is delivered to the breeder house to produce fertilized eggs for Purdue Industries. This year, a full flock—over 12,000 birds—produces at peak 9,800 eggs a day. Critical for egg production is the ability to maintain a consistent environment for the birds because they cannot endure drastic changes in temperature.

Electricity is critical to maintaining that consistent environment. Van Metre explains, "In the poultry house, the birds can't withstand major temperature fluctuations. In the winter months when it is colder, we don't use electricity to keep the poultry house warm, but in hot months I run fans to keep the house cool. Chickens don't lay eggs without daylight; on dreary days, the energy drawn to imitate natural daylight makes the meter spin pretty good. Once the eggs are produced they are immediately sent on a conveyor belt to a chiller."

When the electric bills kept going up, his wife Karen, a middle school science teacher in Grayson County, said, "Research solar—it's good for the environment and if it pays for itself, I am all for it."

After months of researching solar companies he sought and received a $10,000 grant from the Kentucky Agricultural Development Board to assist

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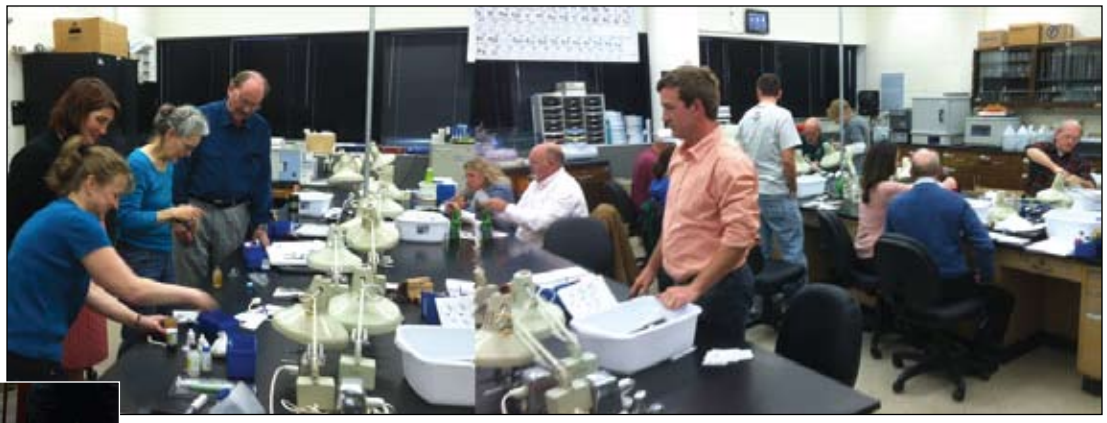
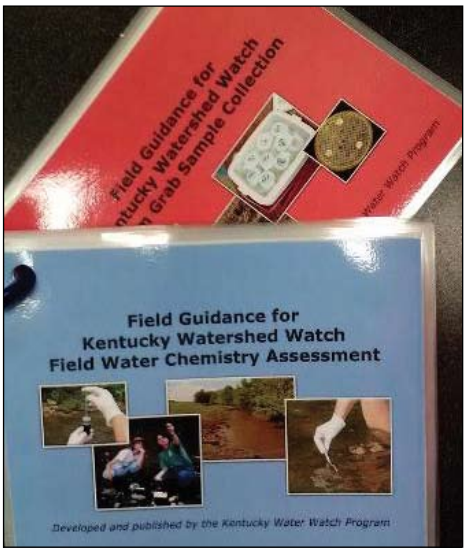
*Grant generates new training materials for Watershed Watch volunteers*






**ABOVE:** ***Watershed Watch in Kentucky volunteers attend a training workshop conducted by the Division of Water.***

**LEFT:** ***Don Dampier inspects one of the new flipbooks created by the Division of Water. Dampier, a Scott County resident, has volunteered with the Kentucky River Watershed Watch program for 16 years.*** Photos submitted

# Watershed Watch gets a makeover

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

Kentucky's extraordinary wealth of stream miles poses an extraordinary monitoring challenge. Over the past decade, this challenge has been met, in part, by Watershed Watch in Kentucky (WWKY) organizations across the state.

WWKY is a statewide citizen volunteer effort that partners with the Kentucky Division of Water (DOW), Kentucky Waterways Alliance and the Sierra Club. Since 1997, these organizations have trained more than 4,000 volunteers in the eight major river basins—Big Sandy, Four Rivers, Kentucky, Licking, Salt, Tradewater and Lower Green, Upper Cumberland and Upper Green. Each basin organization trains citizens to monitor streams, making knowledgeable observations of stream health and measurements of contamination levels—most of them related to nonpoint source pollution.

Watershed Watch and the basin organizations are nonprofits that depend on donations and grants for funding to support their activities.

Recently, the DOW awarded WWKY a $440,000 319(h) nonpoint source pollution control grant to update training materials and retrain its volunteers to more effectively test and interpret water quality in the Commonwealth. More than 500 volunteers participated in workshops this spring, with more expected to be trained by project's end in November 2013. Approximately 1,000 volunteers continue to regularly sample across the state.

The nonpoint source pollution grant program is funded through the U.S. Environmental Protection Agency (EPA) under Section 319(h) and is administered in Kentucky by the DOW. The grant awarded to Watershed Watch is composed of $269,174 in federal dollars, to be matched by $176,116. Most of the match will come from the value of volunteer hours and a portion from funds provided by the Virginia Environmental Endowment.

Kentucky, like all states, has widespread nonpoint source pollution from urban and agricultural runoff, failing septic systems and straight pipes, mining and silviculture operations, construction and stream modification activities. Under Section 319(h) of the Clean Water Act, states receive grant money from the EPA to support a wide variety of activities, including watershed planning, technical and financial assistance, education and training, demonstration projects and monitoring of streams in the projects.

For this project, DOW staff rewrote the Watershed Watch sampling and assessment procedures to more closely follow DOW procedures. They also created easy-to-use flipbooks that summarize procedures and instructions, created new forms for volunteers to record their collected information and created new training presentations that mirror the other new materials.

Volunteers in the program receive free, Phase I introductory training on how to take a qualified water sample that will be analyzed by a professional laboratory. They are also trained to perform basic

***Continued on Page 7***

# Timber piracy in Kentucky

*Victims seek stronger penalties for tree thieves*

By **Arnita Gadson and Janet Pinkston**
**Environmental Quality Commission**

It happens on family land, it happens in vast forests owned by the federal government, and it happens in state-owned nature preserves. Logging thieves slip in and saw down trees deep in the forest and haul them to market under the pretense that the asset is their own.

At the saw mill, large sums are exchanged in transactions because hardwoods, such as oak and black walnut, are highly prized in the manufacture of fine furniture, boats and guns. Lumber from red oak, white oak, black walnut and tamarack has many commercial uses too, experts say, and its natural beauty, luster and durability cannot be imitated by man-made substitutes. This is why a single hardwood tree can fetch a price as high as $5,000 and a truckload can bring $100,000.

Forty-eight percent, or 12.4 million acres, of Kentucky is covered by woodlands and therefore ground zero for a property crime known as timber theft. Nationwide, timber theft is a $1 billion crime, according to Virginia Tech University.

Victims, such as a retired Lexington professor with family land at the head of South Fork of the Kentucky River in Breathitt County, estimate that he and 30 other heirs lost $500,000 worth of lumber to thieves in that location. The 210-acre crime scene, involving the illegal harvest of nearly 1,000 trees, was discovered as the theft was occurring. The size and scope of the theft meant that the thieves had been sawing down trees that did not belong to them for a period of weeks.

Kentuckians who suffer timber theft may pursue civil action. However, in addition to their loss of timber and property damage, victims are also saddled with the expense of hiring a forester to measure the number of board feet stolen, a lawyer to pursue the case and years of frustrating litigation.

*Landowners in Whitesburg, Ky., discovered these stumps among woodland destruction in March 2009.* Photos submitted

## Absentee landowners face the greatest risk

Timber thieves often seek out landowners, like the professor, whose residence is in one part of the state while owning property in another. Absentee property owners can be found by searching public records at any courthouse, making them easy targets.

Nina Cornett of Letcher County, and husband Dean and several cousins, experienced a $90,000 to $100,000 timber theft in 2003 on four separate properties. She received what she describes as "a liberal education in weak laws" on the matter, and consequently began lobbying to educate other victims on their rights and responsibilities as landowners.

"The matter is not usually a boundary dispute. Thieves will take stolen trees over

***Continued on Page 12***

# Watershed Watch gets a makeover

*Continued from Page 5*

water quality field tests for dissolved oxygen, pH, temperature and conductivity. Volunteers participate in coordinated monitoring on designated weekends, collecting samples that are delivered to laboratories for analysis to detect pesticides, E. coli bacteria and heavy metals and nutrients, depending on the basin and the time of year.

Some volunteers go a step further, taking advanced Phase II training to acquire the skills to systematically make observations of other important stream health indicators, such as macroinvertebrates (commonly referred to as "bugs") and habitat conditions.

"Watershed Watch volunteers are a knowledgeable lot when it comes to understanding the health of their adopted water bodies and stream conditions in general," said Pamla Wood, 319 project coordinator. "But in the past decade, sampling and the scientific methods of monitoring have changed, so Watershed Watch decided it was time to upgrade our program, too."

For example, said Wood, testing for fecal coliform was performed to indicate the presence of bacteria. Now, the presence of the specific bacteria E. coli is measured to provide more accurate water quality results. This change required laboratories to alter their testing methods, which in turn required volunteers to learn new methods and terminology.

Woods said the new training and materials are fantastic.

"All the retrained and new volunteers have found the laminated flipbooks extremely user-friendly with their photos and step-by-step instructions for sampling procedures," said Woods. "In addition, a flipbook key with drawings and descriptions assist with bug identification. These materials, plus the training, will provide consistency in training and testing methods. Consistency is necessary to ensure the quality of the sample results and allow comparison of sampling results across basins."

Watershed Watch organizations give each new volunteer supplies to carry out their stream health observations. This grant provides new supplies for each retrained volunteer, as well as supplies for training sessions for the next few years. For many of the cash-strapped basin organizations, these extra supplies are a terrific boon, said Woods. Supplies include dissolved oxygen and pH kits, thermometers, conductivity meters, magnifying lenses and nets.

Woods said retraining of the volunteers is being done by retraining the dedicated core of volunteer trainers. Since the trainers were already experts, the retraining focused on the new procedures and consistency of training and messaging.

"DOW staff conducted 11 one-day workshops across the state this spring to recertify 55 trainers to teach Phases I and II," said Paulette Akers, manager of the DOW Watershed Management Branch. "These trainers, in turn, have conducted 40 workshops for existing and new volunteers."

Akers said the role of volunteers in stream testing is invaluable to DOW.

"Volunteer activities help scientists understand the effect that weather and land use have on local water bodies," said Akers. "It is very important that volunteers be well trained on how to make observations and take their water samples. The information they provide allows Kentucky to have an extensive database of current water quality information."

Akers said new volunteers in Watershed Watch are always welcome and that a background in science is not a prerequisite to participation.

"The only requirements are a concern about the waterways in your community, willingness to donate some time and energy to their protection, and proximity of your home within five miles of one of your study streams," Akers said. "If you meet these qualifications, we invite and encourage you to select the watershed you want to work with and sign up for training."

To learn more about Watershed Watch in Kentucky or to enlist as a volunteer, visit the DOW Watershed Watch Web page at http://water.ky.gov/wsw/Pages/default.aspx or contact Joann Palmer at 800-928-0045 or email joann.palmer@ky.gov.

# Surrounded by forest

***Continued from Page 1***

immeasurable. Homeowners have learned firewise techniques, such as how important it is to create a defensible space around their home, how to create 'green' landscaping and remove flammable vegetation near their home, and about how different types of flame-resistant materials can prevent or at least reduce potential damage from wildfire. The council has also worked with Lake Lewman residents to improve access to their properties along the narrow road, to reduce fuels by removing vegetation and pruning limbs, to install two dry hydrants and to purchase metal reflective address signs along Lake Lewman Road. The council is also currently working with the U.S. Forest Service to complete GPS mapping of old logging roads around the community that can be improved as fire breaks.

"Firewise practices not only help our communities protect their homes, they increase the margin of safety for firefighters," said Blevins. "We know the danger of wildfire all too well in this area, and we are very appreciative of the Firewise program and partners such as the Kentucky Division of Forestry who continue to help us raise public awareness and implement firewise practices."

Firewise has a collection of resource materials for homeowners available online. For more information about firewise practices and the Kentucky Firewise program, visit http://forestry.ky.gov/wildlandfiremanagement/Pages/KentuckyFirewiseProgram.aspx.

# EPA proposes tighter rules on soot pollution

By **Roberta Burnes**
**Division for Air Quality**

The U.S. Environmental Protection Agency (EPA) has proposed tighter standards to control fine particle pollution, including soot (known as $PM_{2.5}$). The proposal was issued in June after federal court ordered EPA to update the health-based standard in response to a consent decree. Plaintiffs in the lawsuit argued EPA had delayed updating the standard.

Fine particulate pollution is regulated under the Clean Air Act because it can penetrate deep into the lungs, where it can cause a range of serious health effects. $PM_{2.5}$ has been linked to premature death, heart attacks and strokes, as well as acute bronchitis and aggravated asthma among children. The "2.5" refers to the size of the particles, which measure 2.5 micrometers (2.5 μm) or less in diameter. For comparison, an average human hair measures 70 micrometers in diameter.

Currently all air monitors in Kentucky counties show compliance with the current standard of 15 micrograms per cubic meter of air, but that could change with the new standard. Under the proposal, EPA is considering lowering the standard to within a range of 12.0 to 13.0 micrograms per cubic meter ($\mu/m^3$), calculated on an annual average. As of Aug. 7, 2012, only Jefferson County had a monitor that registered above 12.0 $\mu/m^3$.

After considering public comment, the EPA expects to finalize the proposal in mid-December.

# Buzzard Rock named "Clean Marina"

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

Buzzard Rock Resort and Marina, located on Lake Barkley in Lyon County, is now flying the "Clean Marina" flag presented earlier this year by the U.S. Army Corps of Engineers.

The Clean Marina Program is an education and outreach initiative that encourages the implementation of best management practices at marinas. Boaters are also encouraged to adopt environmentally responsible behaviors.

Clean Marina designations recognize marinas for exceeding regulatory requirements by voluntarily incorporating higher environmental standards into daily operations. The program also serves as a forum for sharing technical guidance on such items as solid and hazardous waste management, state and federal regulations and pollution prevention techniques.

Buzzard Rock was honored for its efforts to better protect the marine habitat, specifically in terms of sewage management, oil and gas control, solid waste and petroleum recycling, vessel maintenance and repair, marina site design and maintenance, storm water management and erosion control, and education.

Lt. Col. James A. DeLapp, Nashville District commander, presented owner Wayne Pederson with the Clean Marina flag and congratulated him for the marina's certification and its commitment to reducing pollution and erosion in the Cumberland River watershed.

"It shows you are willing to go the extra mile to make sure your marina is setting the standard for everyone else out here," DeLapp said. "I greatly appreciate your efforts. And, you're the first on Lake Barkley, which is a great achievement."

In accepting the flag, Pederson said, "I'm deeply honored receiving this designation. You know we only have one environment and to protect it just makes good sense. Buzzard Rock has always and will continue to care about the marine habitat, and the environment and clean water."

Lake Barkley Park Ranger David Landis worked with Buzzard Rock Resort and Marina during the entire Clean Marina process. He said they actually qualified for the designation in 2011, but that tornado damage to the marina postponed the ceremony.

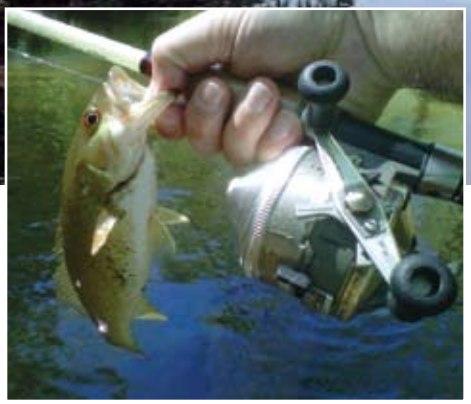
"There is a lot of work involved with this," Landis said. "People don't think about what it takes, how we're managing the water, how they're managing the marina to keep the water as clean as possible for the visitors and patrons that come here."

***Raising the Clean Marina flag at Buzzard Rock Resort and Marina are owner Wayne Pederson (left) and U.S. Army Corps of Engineers Nashville District Commander Lt. Col. James A. DeLapp.*** Photo courtesy of USACE

### Kentucky marinas flying the Clean Marina flag include:

- Big Bear Resort
- Cedar Knob Resort
- Clifton Marina
- Cuba Landing Marina
- Hester's Resort and Marina LLC
- Kenlake Marina
- Kentucky Dam Village State Park Marina
- Lighthouse Landing Resort and Marina
- Paris Landing State Park Marina
- Pebble Island Marina

*The Big South Fork of the Cumberland River yields various fish species, including bass and trout, and is ultimately protected by the completed reclamation project.*



# Stream on the Mend

By **Ricki Gardenhire**
**Office of Communications**

Rock Creek is a beautiful stream that flows through southwestern McCreary County in southcentral Kentucky. It is filled with impressive boulders, making riffles and runs. The stream is stocked with rainbow and brown trout from March to December, while the dense vegetation along the creek provides excellent cover and nesting for various species of warblers and other Kentucky songbirds. Blue herons can be seen on its creek banks; wild turkeys feed nearby and black bears are making a return to the area.

Upper Rock Creek is designated as a Kentucky Wild River, meaning it has been recognized for its exceptional quality and aesthetic character and is protected from unwise use and development.

In 2012, Upper Rock Creek—from Bell Farm Bridge to the Tennessee border—was one of 13 streams that had a designated section for a seasonal catch-and-release season for trout fishermen. Lower Rock Creek flows out of Pickett and Scott counties in Tennessee and then into Kentucky. At its confluence with White Oak Creek, the Kentucky Wild River status ends, but not because it isn't just as magnificent as it is upstream.

Underground coal mining began in the Rock Creek watershed in the early 1900s and continued through the 1960s.

Lower Rock Creek's aquatic habitat and fresh water supplies for terrestrial animals had been decimated from sulfuric acid mine drainage (AMD) from more than 40 underground coal mine portals and eight pyrite-rich refuse dumps. In addition, exposed refuse dumps posed a fire hazard and fed sediments to the water.

But in 1998, all that began to change. A task force was formed to find ways to stop the acid drainage that was ruining the waterway.

## The Recovery

It has taken 10 years, $2.4 million, hard work and thousands of tons of limestone sand to reduce acid loading to near zero in the portion of Rock Creek that flows into the Big South Fork of the Cumberland River.

The project was completed in three phases—the installation of about six miles of open limestone channels, which provide a long-term alkalinity source needed to balance the mine acid; construction of a vertical flow pond system to treat water that seeped out of the hillside from a collapsed deep mine; and construction of a self-flushing limestone pond that added another treatment mechanism.

Bob Scott, director of the Kentucky Division of Abandoned Mine Lands, said the project had two goals—to reduce the acid entering Rock Creek and the Big South fork and to restore the land where the coal processing refuse dumps are located to a vegetated state comparable to the surrounding land.

Here's how it all worked. Initial water sampling identified the mine sites that were major contributors of AMD entering the Lower Rock Creek watershed. The AMD is sulfuric acid generated by pyrite in the strata associated with the mined coal seams and allows metals to be dissolved in the drainage. The combination of low pH and dissolved metals made it difficult for anything to live in this stretch of Lower Rock Creek.

The first phase of the project to improve the water quality of Rock Creek was

***ABOVE: Prior to constuction, Lower Rock Creek showing the affects of acid mine drainage. UPPER RIGHT: Construction of the self-flushing limestone pond. RIGHT: Lower Rock Creek after reclamation.*** AML photos

to add alkalinity into the watershed. Alkalinity neutralizes the acid being produced by the abandoned mines. Open limestone channels were constructed in impacted tributaries due to the nonpoint source nature of the seeps and collapsed portals that fed acid into the water. The bed load was excavated and replaced with high purity, 85 percent calcium carbonate limestone, which worked to raise the pH and remove metals from the water in the tributaries. More than six miles of channels were installed in four branches of White Oak Creek and in three direct branches of Rock Creek.

Later in 2000, the Division of Abandoned Mine Lands began excavating acidic refuse from the banks of Lower Rock Creek, reclaiming two coal load-out areas, establishing limestone treatment ditches, reclaiming a coal refuse fill and continuing limestone sand dosing. Testing of the coal mine refuse along the banks of Lower Rock Creek and elsewhere revealed that the mine waste was some of the most acidic material in Kentucky. In an effort to neutralize the material, ag-lime was mixed with the refuse as it was being placed into a compacted fill. The fill was then capped with soil material and vegetated.

Phase two activities included construction of a vertical flow pond system, designed by AML, at upper Paint Cliff to treat water that seeped out of the hillside from a collapsed mine entry.

In 2010, Phase three of the project was completed. The Paint Cliff site included several mine portals and acid producing coal processing refuse. This was the first of the division's AMD projects to utilize a self-flushing limestone pond as part of its abatement projects. The pond is a buried basin of limestone that uses the water that discharges directly from the deep mine. Mine water flows into the system, dissolves the limestone, and then leaves the system, degassing the carbon dioxide and raising the pH of the water.

## The Results

"The Lower Rock Creek Watershed Restoration Project has been a success that exemplifies the need, purpose, and capability of the abandoned mine land program. The project overcame great obstacles from technical problems, minimizing construction induced sediment problems, to permits and funding," said Scott. "The Rock Creek Task Force brought together regulatory public agencies that provided input from multiple scientific disciplines and created a "buy-in" effect for all parties involved."

The stream now has zero acidity and has virtually eliminated the AMD impacts from the Rock Creek watershed into the Big South Fork, while reclaiming the barren refuse piles reduced sediment erosion and suppressed the fire hazard.

"Most importantly, the restoration of the Rock Creek watershed has had a major impact on the lives of the residents of the area," said Energy and Environment Cabinet Secretary Len Peters. "The environment of the region is much cleaner, allowing families to enjoy swimming and fishing again."

In fact, Mark Meade, assistant director of Kentucky's AML program and an avid angler, says the fishing is fantastic. "In late April of this year I literally landed a rainbow trout on my first cast! My longtime fishing partner, Monte Hay of Ashland, and I caught multiple trout in the formerly dead areas of Rock Creek below White Oak junction. We also landed bass

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# Kentucky receives grants from EPA

By **Mary Jo Harrod**
**Division of Compliance Assistance**

The U.S. Environmental Protection Agency (EPA) has awarded three brownfield grants to Kentucky totaling $1.9 million to fund the assessment and cleanup of properties with environmental problems.

Brownfields can be old factories, former gas stations, mine-scarred lands and abandoned dry cleaning establishments that are abandoned or underutilized due to real or perceived environmental contamination. There are an estimated 450,000 abandoned and contaminated waste sites in the country.

The Kentucky Brownfield Redevelopment Program received one of the grants—an $850,000 Revolving Loan Fund. As a result, the Kentucky Department for Environmental Protection (DEP) will have first-time funding available to establish a brownfield redevelopment revolving loan fund.

"The expansion of the Brownfield Redevelopment Program to provide grants and loans to Kentucky communities further enhances the department's efforts to protect the environment and improve the lives of the people living in these communities," said DEP Commissioner R. Bruce Scott.

*"This grant provides additional resources for the Kentucky Brownfield Redevelopment Program to use to assist businesses, local governments and nonprofits to clean up blighted properties and put them back into productive reuse."*

Herb Petitjean
Brownfield Coordinator

The fund will provide low-interest loans and subgrants for cleanup activities on brownfield sites in communities across Kentucky. When loans are repaid, the loan amount will be returned to the fund and loaned to other borrowers, providing an ongoing source of capital for redevelopment. This is the second significant event this year for the brownfield program, the first being the passage of House Bill 465. The bill clarifies legislation passed in 2005 to provide environmental liability protection to bona fide prospective purchasers of brownfields and address liability concerns related to petroleum releases.

"This grant provides additional resources for the Kentucky Brownfield Redevelopment Program to use to assist businesses, local governments and nonprofits to clean up blighted properties and put them back into productive reuse," said Herb Petitjean, brownfield coordinator.

For many communities, this grant will provide hope and much-needed funding to clean up eyesores that invite vandalism, improve property values and create useful sites for their citizens to live, work and play.

For information on brownfield grants, news and events, publications or links, visit the EPA website at www.epa.gov/brownfields. For information on the Kentucky Brownfield Redevelopment Program, visit dca.ky.gov.

**Other grants awarded to Kentucky include:**

- **Cumberland Valley Area Development District—$200,000 Assessment Grant—**The communitywide hazardous substances grant funds will be used to conduct environmental site assessments in the development district's service area of Jackson, Rockcastle, Laurel, Clay, Knox, Whitley, Bell and Harlan counties. Grant funds also will be used to develop cleanup plans and conduct community outreach activities.
- **Northern Kentucky Area Development District—$850,000 Revolving Loan Fund Grant—**The district will use this funding to establish a revolving loan fund grant for its service area of Boone, Kenton, Campbell, Carroll, Gallatin, Owen, Grant and Pendleton counties.

## Stream on the mend

*Continued from Page 10*

(rock, smallmouth, spotted, and largemouth) as well as sunfish. There were no trophy-size fish, but wade fishing the stream was a lot of fun."

The project's success is best summed up in the words of a local resident and church member, "I want to thank you for cleaning up the creek. Now, when we have baptisms, our underwear doesn't turn orange."

### Award Winning Project

The Kentucky Division of Abandoned Mine Lands will be recognized with a regional award in mine reclamation for the Lower Rock Creek watershed restoration project from the U.S. Department of Interior's Office of Surface Mining (OSM). The award will be presented this fall during the National Association of Abandoned Mine Land national conference in Des Moines, Iowa. The division shares the award with 12 other state and federal agencies and conservation organizations that formed the Rock Creek Task Force.

Since 1992, OSM has presented awards to abandoned mine land reclamation programs that completed exemplary reclamation. The objective is to give public recognition to those responsible for the nation's most outstanding achievement in land reclamation and to encourage the exchange and transfer of successful reclamation technology.

### Rock Creek Task Force

Kentucky Division of Abandoned Mine Lands
Kentucky Division of Water
Kentucky Department of Fish and Wildlife Resources
Kentucky Department of Mining Reclamation and Enforcement
U.S. Office of Surface Mining
U.S. Geological Survey
U.S. Forest Service
U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
U.S. National Park Service
U.S. Natural Resources Conservation Service
Trout Unlimited

# Timber piracy in Kentucky

*Continued from Page 6*

the mountains and out of the back, in a drainage area, to avoid detection," Cornett said. "The justice system has yet to come to grips with it. Sheriffs and prosecutors are challenged because a case is rarely won."

Penalties for timber theft in Kentucky are slight, and the best a victim can do is pursue a civil lawsuit to attempt to recover profits the thief was paid at the time of sale, Cornett said.

"Victims are often old, poor and ill and someone must speak for them. Over the years, the system has come to incentivize victimization because timber theft laws lack teeth. Victims are left with a civil suit as their only option, which is unaffordable for most," Cornett continued.

Cornett is lobbying the General Assembly for change. She says the environment is a big loser too when logging thieves come to call. Thieves "leave destruction in their wake—illegal logging roads and giant piles of debris that violate every best practice in the Clean Water Act as far as logging and preventing sediment from going into rivers is concerned," she told a legislative committee earlier this year.

Hugh Archer, Kentucky Woodland Owners Association board member and executive director of the Kentucky Natural Land Trust, also seeks stronger criminal penalties because no forest in Kentucky is immune from timber theft.

"Thieves target old-growth trees. Even trees in the state nature preserve system, such as Blanton Forest, are not safe," Archer said during testimony before the Kentucky Environmental Quality Commission (EQC). "Blanton is the 13th largest old-growth forest in the United States and 44 acres of 300-year-old trees were stolen there."

In another incident, a Philadelphia woman with Kentucky roots bought 107 mountaintop acres in Morgan County years ago as a long-term investment for retirement. When thieves stole almost $20,000 of her assets in illegal logging she was devastated financially and emotionally. She believes the thief, in her case, is named on an online roster of "bad actors" maintained by the Kentucky Division of Forestry. Bad actors are loggers and operators who fail to follow best management practices to protect water quality resulting in violations during timber harvesting.

Even though the Division of Forestry offers landowners assistance in developing forest stewardship plans and suggestions for reducing their risks of theft, it does not have legal authority to enforce timber theft laws.

"Healthy forests protect our rivers and streams," said Leah MacSwords, director of the Kentucky Division of Forestry. "Not only are the forests damaged by timber thieves, the waterways that run through them are susceptible to runoff pollution."

### Are stronger laws in the future?

Earlier this year, Cornett persuaded Rep. Leslie Combs of Harlan to prod the General Assembly to study timber theft and strengthen criminal and civil laws. The legislator's House Concurrent Resolution 64 was approved by the House but never made it out of committee in the Senate. The resolution can be found at http://www.lrc.ky.gov/record/12RS/HC64.htm.

On Feb. 23, EQC resolved to support Combs' legislation.

"We must protect forests because they are protecting us by cleaning the air, soaking up floodwaters and preventing erosion," said EQC Executive Director Arnita Gadson.

# Going solar: an 'eggs'cellent investment

***Continued from Page 4***

in the purchase and installation of a solar generation system.

The result—an 18.33 kW photo-voltaic system was installed on the south-side roof of his poultry house. Estimates are that it will produce approximately 22,560 kWh per year. At the current rate of 24 cents per kWh, the system will generate about $5,414 per year. With the additional incentives that were available, payback of the $89,000 system will be seven years.

Van Metre's electric bills were approximately $1,000 a month. Since the solar power system was installed last November, he has not had an electric bill for five months and currently earned an $800 credit.

When asked if he would purchase solar again he replied, "Although it seemed like a long time to get things rolling, I would do it again in a heartbeat. It has made such a difference—now I watch every little thing to see how I can pull my energy usage down. Because of the recent drought I tell my neighbors I pray it rains at night and for the sun to shine the next day."

For more information, visit http://ag-energy.ky.gov/.

# Sag Hollow Golf Club

***Continued from Page 2***

wore on and the course drew visitors, there was a real appreciation for Sag Hollow. The gravel county road was paved, and people use the clubhouse for fundraisers, reunions, showers and other events. The community is delighted to have Sag Hollow Golf Club in its midst.

Land that had once been unusable now has ponds stocked with fish; a golf course to teach the sport to local youth and provide recreation to residents and visitors; and landscaping with shrubs, flowers, trees and native grasses to add beauty and provide a habitat for a variety of wildlife.

For information about developing previously used properties that may have been impacted environmentally, contact the Kentucky Brownfield Redevelopment Program at 800-926-8111.

# DOW invites educators to get WET

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

**TOP LEFT:** ***A Morehead State University (MSU) student assists a Rowan County Middle School student at the macro-invertebrate station for the Triplett Creek Field Day.*** **ABOVE:** ***MSU students examine soil types.***
Photos courtesy of April Haight, MSU

The Kentucky Division of Water (DOW) has assumed state sponsorship of Project WET (Water Education for Teachers), an interdisciplinary water science and education program for formal and nonformal educators of students in kindergarten through grade 12 and adults.

The program was previously sponsored by the Kentucky Environmental Education Council (KEEC), which managed the program for seven years.

"I am thrilled that the Division of Water is increasing its commitment to educating teachers, students and the general public about water by becoming the Project WET state coordinator," said Elizabeth Schmitz, KEEC executive director. "KEEC has only two staff members, which limited our ability to adequately operate the program. While we have enjoyed serving as the state coordinator for Project WET, one key element of coordinating environmental education in the Commonwealth is finding partners who are the best possible fit for a given leadership role. The Division of Water is well suited to this role."

Schmitz said KEEC will continue to support Project WET by working with DOW as needed, during and after the transition.

The goal of Project WET is to provide scientifically accurate and educationally sound water resources education materials, training courses and networking services to citizens, organizations, governments and corporations.

Michelle Shane, DOW's Project WET host coordinator, says water education has never been more important.

"We need to better understand our connections to water so our communities are equipped to handle the many water issues we are facing today and will face in the future," said Shane. "By understanding the real value of water, we can make decisions individually and collectively to better manage, conserve and protect this valuable resource."

Ashley Hoffman, executive director of the Kentucky Association for Environmental Education, said Project WET provides effective education that can lead to positive change by looking at the issues relating to water.

"The activities provided by Project WET and other national environmental education projects ensure not only a basic understanding of environmental systems such as the water cycle, but also provide a deeper understanding of the interconnectedness of all living things and the role that we humans play in this cycle," Hoffman said. "Environmental education is not just about raising awareness; it's about promoting environmental stewardship and helping to develop knowledgeable and responsible students, teachers and citizens."

The primary tool of the program is the newly revised Project WET *Curriculum and Activity Guide 2.0*, a 592-page book containing 64 interactive and classroom-ready activities, varied lesson plans, cross-reference tables, indices and a substantial glossary. The activities are grounded in science and are cross-curricular in nature, addressing the chemistry of water, functionality of watersheds, and such contem-

***Continued on Page 15***

# The fugitive: dust on the run

By **Roberta Burnes**
**Division for Air Quality**

What do you think of when you hear the word "fugitive?" Perhaps it's a Hollywood movie with Harrison Ford, or an image of a runaway prisoner. In the air quality world, however, "fugitive" often means dust.

Imagine driving down a dry gravel road in the summertime. That dust you're kicking up behind you travels through the air, eventually settling back onto the ground. Now imagine a dusty road that gets constant traffic, perhaps from heavy equipment or trucks. Dust generated from this activity becomes *fugitive* when it crosses property lines or roadways, where it can obscure visibility and create a range of health and environmental problems.

Fugitive dust is composed of solid airborne particles emitted from any source other than a duct, pipe, stack or chimney. "Think of fugitive dust as runaway air pollution that usually results from human activities," says Division for Air Quality Director John Lyons. "It's basically dust that has escaped from an area like a field, a roadway or a storage pile."

In Kentucky, fugitive dust is regulated under 401 KAR 063:010. This regulation covers dust as well as other emissions such as gases, fumes and vapors—collectively known as fugitive emissions.

What kinds of activities lead to fugitive dust?

- Transporting vehicles or construction equipment on unpaved roads.
- Gravel handling, crushing or quarrying; coal handling, sizing and mining.
- Storage and transport of dusty materials (gravel, feed grain, etc.).
- Heavy construction operations.


Dust from activities like these can travel long distances or settle on surrounding property, resulting in the need for frequent cleaning. Visibility can also be impaired, especially along unpaved roads, which can lead to accidents.

Fugitive dust can also cause health problems among children, the elderly and those with chronic respiratory conditions like asthma or bronchitis. Even plant growth can be affected when heavy dust settles on leaves, reducing exposure to light and interfering with photosynthesis.

## Dust and Drought

The extremely dry conditions seen across Kentucky this summer may have contributed to localized air quality problems in some areas. That's because dust is more likely to escape into the air during

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**TOP:** ***Red clay soil being loaded into a dump truck. Most of the dust was generated by the truck driving to the loader on a dry dirt path. For long-term projects, large diameter gravel paving of haul roads may be the best option. Watering roads and work areas also will greatly reduce dust.*** **MIDDLE:** ***In this case, fugitive emissions could be coming from different sources. First, the drop point from the conveyor to the stockpile as dry rock moves through the conveyor system. Second, stockpiles can dry out and wind can pick up dust as it passes. Third, loading rock into trucks can generate dust if the material is too dry. Fourth, vehicle travel over the gravel lot will produce dust. Roads and work areas should be wetted to prevent the generation of dust.*** **LEFT:** ***Materials deposited on paved roads ends up becoming airborne dust. A "wheel wash" or other vehicle cleaning system for trucks leaving a quarry or other construction site, as well as regular wet sweeping of the roads, can reduce tracking and material loss on paved road.*** DAQ photos

# DOW invites educators to get WET

*Continued from Page 13*

porary issues as water systems, resource management, water quality, water conservation, land-use planning and wetlands.

Hoffman lauded the interdisciplinary nature of the Project WET materials.

"Teachers will have no problem using this curriculum in math, science, social studies, art or physical education," Hoffman said. "It is easily correlated with state and national standards and can be used with all ages, from early childhood to adult, to ensure students are environmentally literate."

April Haight, director of the Center for Environmental Education at Morehead State University (MSU), said she has successfully used Project WET in her teaching program for years.

"Each year we certify about 40 students in Project WET by incorporating it into an MSU science education course," said Haight. "These students then use what they have learned to assist with an annual field trip conducted by Rowan County Middle School. Project WET prepares our students well to help these eighth-grade students learn about water quality and conservation."

Persons interested in using Project WET activities can request a sampler training course to learn more about the materials offered and gain access to seven activities. To use the full *Curriculum and Activity Guide 2.0* and gain access to the online Project WET portal resources, individuals must become certified in the project by attending a full-day Project WET workshop. Additionally, with the release of the 2.0 guide, the Project WET national office is requesting that persons previously certified take a refresher course to use or teach the newest version of the materials.

For further information on obtaining first-time or refresher training in Project WET, email Michelle Shane at ProjectWET@ky.gov or call the Division of Water at 502-564-3410.

***An MSU student takes part in a water picture activity.*** Photo provided by MSU

# The fugitive: dust on the run

*Continued from Page 14*

prolonged periods of drought. "As we saw during the Dust Bowl in the 1930's, drought and dust often go hand in hand," says Lyons.

For example, the severe drought of 2007 coincided with a spike of fugitive emissions complaints. The Division for Air Quality received 387 complaints of fugitive emissions that year, most of which were due to dust crossing property lines.

Likewise, this summer also saw an increase in fugitive emissions complaints. During the first eight months of 2012, DAQ received 181 complaints. More than half of those occurred between May and August, when drought impacted much of the state.

## Foreign Dust

Dust isn't just a localized phenomenon. Airborne particles can travel thousands of miles, and satellites have photographed massive plumes of dust from space. Recently, NASA and university scientists used satellite data to quantify the amount of dust and other aerosols arriving over North America each year from Asia, Africa and the Middle East. The researchers found that 64 million tons of dust, pollution and other particles are annually carried across the ocean to North America. According to NASA, this is nearly as much as the estimated 69 million tons of airborne particles produced in North America from natural processes, transportation and industrial sources.

Does the foreign dust impact air quality and human health? Compared to domestic pollution sources, the impact of imported dust is minimal, say researchers. Most of the particles that make it across the Pacific Ocean are high in the atmosphere, far above the air that we breathe.

## Controlling Fugitive Dust

Kentucky's fugitive emissions regulation requires businesses or operations to take every reasonable precaution to control fugitive dust. If reasonable precautions are not being taken or if fugitive dust is crossing property lines, a business can be cited and possibly fined for failing to control the problem. The regulation does not apply to agricultural practices such as tilling or application of fertilizers, which take place on a farm. Nevertheless, those practices must be conducted in such a manner as to not create a nuisance to others residing in the area.

"Controlling fugitive dust is really about being a good neighbor," says Lyons. "If you can see dust in the air, look for the source. Then take measures to minimize the dust at that source." Spraying with water is one of the best ways to minimize dust along unpaved roads. Other ways to control fugitive dust include:

- Installing windbreaks and barriers.
- Posting and enforcing speed limits on dusty roads.
- Using gravel or water at construction site exit points.
- Washing equipment prior to site removal.
- Covering open piles or trucks transporting dusty material.

# Cabinet News

## Teamwork for a common goal

*Training offers guidance on agriculture best management practices*

**By Mary Jo Harrod**—The University of Kentucky (UK) College of Agriculture and the Department for Environmental Protection's Division of Compliance Assistance (DCA) teamed up recently to offer training sessions on agriculture best management practices for water quality and related Kentucky regulations. Four training sessions were offered at various locations and dates around the state to provide the information needed to comply with the Kentucky Agriculture Water Quality Act.

In 1994, the Kentucky Agriculture Water Quality Act was passed to protect surface and groundwater resources from pollution as a result of agriculture and silviculture (forestry) activities. The UK College of Agriculture explains that the act requires all landowner/land users with 10 or more acres that are being used for agriculture or silviculture operations to develop and implement a water quality plan based upon guidance from the Kentucky Agriculture Water Quality Plan. This plan consists of best management practices from six different areas—silviculture, pesticides and fertilizers, farmstead, crops, livestock, and streams and other waters. One important point of the classes was that simple measures can have huge impacts and save money for producers.

This training was part of an ongoing partnership with UK to develop environmental compliance assistance tools. The training is a great example of various agencies, including the Natural Resource Conservation Service (NRCS), Kentucky Conservation District, Cooperative Extension, Division of Water and DCA, coming together to work on a common sector for the improvement of Kentucky's water quality.

In addition to this training, the project also generated new compliance assistance tools and enhancement to the Ag Water Quality Planning Web Tool, which can be found at http://www.bae.uky.edu/AWQPT/.

## DEP strategic plan for FY 2013

*Illustrates diverse responsibilities, day-to-day priorities*

**By Mary Jo Harrod**—The Department for Environmental Protection (DEP) has posted its Fiscal Year 2013 strategic plan at http://dep.ky.gov/Documents/strategicplanFY13.pdf.

The strategic plan was developed at the division level and organized into six sections to represent the functional responsibilities of each of DEP's divisions. This plan documents DEP's objectives and the primary actions each division will be implementing over the next year to accomplish the department's mission.

Kentucky's Forestry **Branching Out**

## Student creativity needed

*Entries for contests must be received by Dec. 1*

**By Kimberly Richardson**—The time is upon us for the 2012 Jim Claypool Art and Conservation Writing Contests. This year's topic is *"Kentucky's Forests: Branching Out."* It will focus on what Kentucky's forests have to offer when it comes to water, wildlife, soils and the climate.

The contests are open to all Kentucky students in grades 1-5 to submit art entries and grades 6-12 to submit writing entries. Prizes include $25 to the county winners, $50 to the regional winners and up to $250 for the state winner. Contest materials became available Sept. 1. All entries must be received at the student's local conservation district office by Dec. 1, 2012.

The conservation writing contest has been around since 1944 and the art contest since 1974. Nearly 60,000 students from around Kentucky participate each year in these historic contests. Sponsors include the Kentucky Association of Conservation Districts and the Kentucky Farm Bureau Federation.

For more information about how you can participate, contact your local conservation district or Farm Bureau office.


## New DEP blog

*Keep up-to-date information at your fingertips*

**By Mary Jo Harrod—**Stay in the know with the latest news from the Department for Environmental Protection (DEP). Check out the new blog, *Naturally Connected,* that provides a variety of information, including departmental news, regulation changes, press releases and division updates. Find the blog at http://kydep.wordpress.com/

Subscribe and receive an e-mail whenever a post becomes active. RSS feeds also allow you to automatically receive a portion of each article on your computer or smart phone. If you use Twitter, you can receive updates by linking to DEP's Twitter account at http://twitter.com/kydep.


# Understanding forest certification

*Ensures loggers, landowners harvest wood in a sustainable and ethical manner*

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

Foresters with the Kentucky Division of Forestry (KDF) recently attended three regional workshops to help facilitate an understanding of forest certification to Kentucky's woodland owners. The workshops—sponsored by KDF, the University of Kentucky Cooperative Forestry Extension Service, and the Center for Forest and Wood Certification and funded by a grant from the U.S. Forest Service—not only presented an overview of the certification process, it provided information about why it is important to the forest industry. Approximately 50 foresters and natural resource professionals across the state from the KDF, Kentucky Department for Fish and Wildlife Resources, and the Kentucky Natural Resources and Conservation Service participated in the one-day regional trainings.

## What is forest certification?

Forest certification is a system for identifying well-managed forests to ensure sustainability. It came about in the early 1990s as a means of notifying consumers that a wood or paper product comes from forests managed according to a set of environmental and social standards. The "certfication" label on a wood product is much like the "organically grown" sticker on produce, and it is meant as a seal of approval indicating that the wood product was harvested using good forestry practices in a sustainable and ethical manner.

## How will certification improve our forests?

The intent of certification is based on consumer demand. If consumers want "certified" products, then retailers and manufacturers will seek out good wood suppliers. In turn, this will prompt woodland owners and loggers to adopt environmentally sound practices as identified by standards for certification.

## What are the standards for certification programs and who sets the standards?

Certification standards ensure that forests are managed to address both timber and nontimber forest values, maintain forest productivity and biodiversity, protect soil and water, and offer aesthetic, recreational, cultural and wildlife benefits.

There are several forest certification systems available for landowners, each with similar standards, but also some differences. The following forestry organizations have set specific standards for their certification programs: American Tree Farm (ATF), National Woodland Owners Association (Green Tag), Sustainable Forestry Inititative, and Forest Stewardship Council among others.

## How do forests become certified?

Although governmental agencies do not have a certification system, woodland owners can get certified under the systems previously mentioned by contacting a professional forester. For example, a woodland owner might apply for an organization like ATF and work with a forester to develop a stewardship plan to meet the standards for certification. The forest must then be inspected to make sure it is managed under the standard.

While forest certification is still a relatively new concept, it is gaining popularity among woodland owners. As more customers want certified products, there will be more monetary support for certified woodlands and this will not only benefit woodland owners, it will benefit Kentucky's forests.

"Forest certification continues to emerge as a critical factor in maintaining local and global forest economies as it is a response to market driven factors," said Stewart West, KDF's forest stewardship section supervisor. "Kentucky's private and public forest sectors (including the Division of Forestry) need to be well positioned in advance to facilitate this growing demand for maintaining vibrant forest communities, economies and healthy forests within the state."

***Photo by Kentucky Division of Forestry***

# Big Rivers WMA and State Forest dedicated in Union County

***View of Big Rivers WMA and State Forest near the Tradewater River.***
Photo by Lynn True

Access to the area is available off KY 1508. Two roads leading to the interior of the area are also located off KY 1508; however, access beyond gated areas is by foot only. Visitors also have the option to enter the southern portions of the property via boat on the Tradewater and Ohio rivers. A map of the area is available online at http://forestry.ky.gov/Kentuckysstateforests/Pages/BigRivers.aspx

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

The Kentucky Department of Fish and Wildlife Resources (KDFWR) and the Kentucky Division of Forestry (KDF) recently held a dedication for the newly minted Big Rivers Wildlife Management Area and State Forest located in Union County. The property covers nearly 2,500 acres along the Tradewater River and the Ohio River near Sturgis and was purchased through the cooperation of private, public and nonprofit agencies.

Big Rivers will provide public recreational opportunities for hunting, fishing, hiking, canoeing, wildlife viewing and other activities as a wildlife management area. The property will be managed to provide watershed and water quality protection, protection and recovery of endangered, threatened and rare species, and preservation of existing cultural and geological treasures. The property will also be managed as a state forest to ensure biological diversity and sustainable use. Like other state-owned forests, Big Rivers will be a working forest with demonstration areas to promote good forestry practices and will be permanently protected from development and agricultural conversion.

"The Division of Forestry is very excited about this new wildlife management area and state forest," said KDF Director Leah MacSwords. "This joint venture conserves a valuable forest ecosystem and showcases the importance of a well-managed forest."

Visitors to the area will find upland hardwoods, bottomlands and an uncommon forest type in Kentucky—post oak flatwoods. Big Rivers, which was previously managed as a sustainable forest, is primarily wooded with a good number of mast-producing trees. Approximately 600 acres of the open fields will be planted with corn and soybean crops and several wildlife habitat improvement projects will also begin this year. Big Rivers is an important area for federally-endangered bats and mussels and is noted for an abundance of deer, turkey and squirrel.

**Innovative Fox Creek Dam rehab complete**

A $4 million rehabilitation of Fox Creek Multiple Purpose Structure No. 4 in Fleming County has transformed the former earthen barrier into an innovative stepped concrete structure designed to meet high-hazard dam safety requirements and extend its life into the next century. The most obvious feature of the new dam is the series of five steps stretching the width of the dam. The steps are designed to dissipate energy by slowing down the water as it flows over the dam and into a settling pool. The dam provides flood protection and recreation at the 75-acre Fox Valley Lake, which it impounds. The Division of Water (DOW) performed its final inspection June 14, 2012. *DOW photo*

# Awards

## Honorees recognized for conservation practices, educating Kentucky's youth

By **Kimberly Richardson**
**Division of Conservation**

***(left to right) Jeff Rice, KACD president, congratulates Jon Bednarski, Cooperator of the Year award recipient, along with Ginger Perry, Farm Credit Mid-America.***
Photo by David Hargis

The 69th annual Kentucky Association of Conservation Districts (KACD) convention was held in July where district supervisors and employees got the chance to hear about current topics relating to conservation, including soil quality, water quality, dams and Resource Conservation and Development Councils. Fundraising events, such as a live auction and raffles, helped to provide educational scholarships for students.

The highlight of the conference came as many were recognized for their dedication to conserving and educating others about the state's natural resources. Among them were teachers and conservation districts that showed a dedication to educating Kentucky's youth and citizens about soil and water conservation. This year's Conservation Education Award winners were:

- **Sylvia Braber**—a fourth-grade science teacher at Cumberland County Elementary School who is greatly involved with her school's outdoor classroom. Braber pursues many grants to assist with the outdoor classroom project and other endeavors in her classes. One grant allowed her students to write and illustrate books on conservation that are now placed in the state parks.
- **Kim Jett**—a fourth-grade reading, writing and science teacher at Cartmell Elementary School who uses an extensive network of resources to teach her students about conservation. Jett's students participated in an Environmental Career Day that helped them learn about various conservation careers. Jett strives to expand her program each year by involving more local civic groups and businesses.
- **Cumberland County Conservation District**—works with many programs and initiates workshops and classes on topics geared toward retired citizens. These programs help the community understand the district's mission and increase support.

For the sixth consecutive year, the Kentucky Conservation Partnership recognized four individuals for their outstanding leadership and promotion of conservation no-till and prescribed grazing on their farm operations in Kentucky. These recipients exhibit leadership, energy, willingness to share ideas, mentoring and hosting field days and workshops on their farms:

***No-Till Hero Awards***

- **Roger and Bonnie Quarles** operate a 300-acre farm in southern Scott County. They grow corn, soybeans, wheat, alfalfa, tobacco and grass hay. Since 1976, the Quarles have planted their grain crops using the no-till method. They have faced many challenges including weeds, insects and proper seed placement, but have overcome them by using better equipment and appropriate chemicals. The Quarles appreciate the efforts of the conservation district and cooperative extension. They host field days and currently have a Conservation Stewardship Program contract.
- **Gregory Young** raises beef cattle, corn, wheat, soybeans and tobacco in Marion County. Looking to improve the overall health of his soil, Young no-tills grain and 30 acres of tobacco. No-till tobacco is a challenge, and Young begins preparations with his cover crops. He practices a two-year crop rotation with a two-year sod rotation. The advantages of no-till are steadier yields along with reduced labor and fuel expenses.
- **Richard Moore** farms 920 acres in Adairville. He began no-till cropping to reduce labor and fuel costs while improving soil quality. He learned that using the right equipment along with the right herbicides solves some of the challenges of no-till cropping. Along with decreased fuel and labor costs, Moore has seen an increase in yields, water infiltration and organic matter. Moore believes no-till farming has become a better way to farm and a better way of life for his operation.

***Prescribed Grazing Hero***

- **Ronnie Bowling** and his family own a 91-acre farm in Clay County with more than 65 acres of prescribed grazing. Bowling wanted the farm operation to be sustainable, and it now produces 80 percent of their food supply. They have a diverse group of livestock and utilize many available types of forage. The Bowlings have made use of conservation programs to install rotational fencing water systems and pasture and hayland plantings. They have decreased their inputs substantially and have not used fertilizer in years.

***Continued on next page***

# Awards

## Honorees *Continued from previous page*

The KACD also recognized farmers and producers who are taking the initiative to implement sound, innovative and cost-effective conservation best management practices:

- **Cooperator of the Year—Jon Bednarski** of Oldham County purchased his farm in 1996 as a hobby operation. He contacted his conservation district and began work through his Agriculture Water Quality Plan to incorporate best management practices to repair years of abuse from over grazing and water mismanagement. An active community member, Bednarski has served on the conservation district board, extension board and as a board member of the U.S. Belted Galloway Association. His farm has been featured in publications such as the Farmer's Market Today, Kentucky Ag. News and Southern Living. Bednarski was nominated for this award because of his commitment to soil and water conservation and his dedication to promoting good land stewardship, proper farm management and community involvement to address agricultural issues.
- **Cooperator of the Year Runner-up—David Hite** of Trigg County has combined multiple conservation practices to produce comprehensive resource management plans for his farms. He fenced out livestock from ponds and wooded areas to address water quality issues; took measures to control erosion problems that arise and increased wildlife habitat areas around fenced ponds. He managed his pastures with nutrient management, annual reseeding and rotational grazing. Hite is involved with the Kentucky Cattleman's Association and has completed UK's Master Cattleman Program.

The convention recognized two conservation districts for their outstanding programs—Butler County Conservation District (Areas 1-4) and Madison County Conservation District (Areas 5-9).

Others recognized at the convention include:

- Junior Board of the Year—Scott County Junior Conservation Board
- State Envirothon Winners—Fayette County Envirothon Team
- Special Recognition Award—Sanford Holbrook, Magoffin County, for his service on the KACD Board of Directors.
- Induction to the National Association of Conservation Districts Southeast Regional Hall of Fame—Kevin Jefferies, Oldham County.
- Conservation Person of the Year—Jeff Rice, Daviess County, for his service as KACD president.
- Distinguished Service Award—Former Rep. Fred Nesler.

***No-Till Heroes***

***LEFT: Jeff Rice, KACD president (left) and Richard Moore.***

***RIGHT: Jeff Rice (left) and Roger Quarles.***
Photos by David Hargis

## From the Secretary's Desk
*Continued from inside cover*

rates, while remaining among the lowest in the nation, have been rising faster than the national average. Energy efficiency offers the cheapest way to help meet future demand for electricity.

If we were drafting an energy plan today, how would it differ from the one released four years ago? The key drivers for a diversified energy portfolio and robust energy efficiency programs are still there. In fact, today, the urgency might be even greater. Four years ago, natural gas from the Marcellus Shale and other fields (all in other states) was not the game changer it is today. That alone has placed Kentucky's energy future on a different path, as states that have been importing Kentucky's coal shift to what is currently a cheaper option—natural gas. One thing that hasn't changed is an inconsistent and unpredictable national energy policy. With competing interests across regions and states, I don't see how the scenario will ever change, and that alone provides the compelling reason why we need to remain constant with our own policy objectives.

I know I've only touched generally on these issues, but they are topics that will continue to keep us engaged within the cabinet and with others as we seek to chart a sound energy policy that allows us to grow our economy and protect our environment.

Read the governor's energy strategy at http://energy.ky.gov/resources/Pages/EnergyPlan.aspx.

## Kentucky school featured in *Parade Magazine*

Richardsville Elementary School in Warren County was recently featured in *Parade Magazine* as a model green school facility. Richardsville Elementary is the nation's first net-zero energy school. Read the report, *"Rebuilding America's Schools…The ABCs of School Makeovers,"* at http://www.parade.com/news/2012/08/12-rebuilding-americas-schools.html?index=1

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# Seedling nurseries: growing trees for healthy and productive forests

Blackgum, also known as black tupelo or sour gum, is a medium tree with slender limbs often growing at right angles to the trunk. The fall foliage of blackgum is a brilliant scarlet, making it one of the preferred landscape trees in Kentucky. Blackgum seedlings, as well as the other native species to Kentucky, are available from early fall to early spring each year 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 KDF's website at http://forestry.ky.gov/statenurseriesandtreeseedlings/Pages/default.aspx or call the division's main office at 1-800-866-0555.

### *Just the Facts: Blackgum (Nyssa sylvatica)*

- **Growth:** Blackgum trees commonly grow 40 to 60 feet in height and 1 to 2 feet in diameter, but can reach 100 feet in height and 4 feet in diameter. The leaves are alternate, simple, 2 to 5 inches long and oval with a pointed tip. Flowers are light green, growing in clusters hanging from slender stalks. Fruit is round, dark blue, one-half inch across and grow clustered on stalks. On younger trees, the bark is gray and furrowed between flat ridges. Older trees have dense, hard and nearly black bark, developing squared blocks resembling alligator hide.
- **Sites:** Blackgum trees grow well on a wide variety of sites, from creek bottoms to upland slopes; however, they grow best on well-drained, light-textured soils in bottomlands and on the high flats of silty alluvium soil. In the uplands it grows best on the loams and clay loams of lower slopes and coves.
- **Range:** Blackgum grow throughout the eastern United States from southwestern Maine and New York, to central Michigan, Illinois, and central Missouri, south to southern Florida, eastern Texas and eastern Oklahoma. It also occurs locally in central and southern Mexico. Optimum development is found on lower slopes in the southeastern United States.
- **Human Uses:** The wood of blackgum is very tough, cross-grained, hard to work and warps easily. It can be used for containers, crossties, rough flooring and pulpwood.
- **Wildlife Uses:** The fruit of blackgum serves as a food source for many species of birds and wildlife. Blackgum trees also make great dens for wildlife because the heartwood often rots.
- **Tree Trivia:** Blackgum is a major source of wild honey in many areas within its range and hollow sections of trunks were formerly used as bee gums by beekeepers.

***Photo courtesy of the University of Kentucky***