



# Land Air & Water

Kentucky Energy and Environment Cabinet

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Volume 19 Number 4  
Fall 2008

# Land Air & Water

since 1988

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## Environmental Protection offices have moved

A number of Department for Environmental Protection employees in Frankfort are happy to have new offices. For years, they worked in the cramped quarters of the old cluster of buildings known as the Reilly Road Office Complex. Today, they occupy clean and more modern offices directly across the road at Fair Oaks Lane.

"It brings us all together under one roof," said Eva Smith-Carroll of the Division of Waste Management.

The divisions of Water, Waste Management and Air Quality are now only separated by a few steps, not buildings or highway miles. Not only does the move provide better working conditions, but it also improves communication among the divisions.

"The department has been located at the Reilly Road Office Complex for the past 25+ years in some instances," said R. Bruce Scott, commissioner of the Department for Environmental Protection. "This move provides the department with the opportunity to centralize the majority of our staff and files into one location, which should enhance our ability to deliver our services in the years ahead."

Listed below are the offices' new addresses and telephone numbers:

- Division for Air Quality (previously located at Schenkel Lane)—200 Fair Oaks, 1st Floor. Telephone: 502-564-3999.
- Division of Waste Management (including all Underground Storage Tank Branch employees formerly located at C. Michael Davenport Dr.)—200 Fair Oaks, 2nd Floor. Telephone: 502-564-6716 and e-mail [waste@ky.gov](mailto:waste@ky.gov)
- Division of Water—200 Fair Oaks, 4th Floor. Telephone: 502-564-3410 and e-mail [water@ky.gov](mailto:water@ky.gov)
- Environmental Quality Commission (formerly Reilly Road)—58 Wilkinson Blvd. Telephone: 502-564-2674 and e-mail [EQC@ky.gov](mailto:EQC@ky.gov)

## Feedback about our magazine

*Land, Air & Water* is celebrating 20 years of providing environmental information as it relates to issues throughout Kentucky.

Over the years, you've seen the magazine evolve—from a departmental publication to a cabinetwide magazine that prints in-depth articles about Kentucky's environmental protection and regulation efforts. Today, the magazine can be viewed in print and online at [www.eppc.ky.gov](http://www.eppc.ky.gov).

We would like to hear from you regarding the magazine's contents. Are the articles helpful to you? What are some topics you'd like to see included in the magazine? What issues would you like the authors to tackle?

Send your comments to the editor, [Cynthia.Schafer@ky.gov](mailto:Cynthia.Schafer@ky.gov). By providing your comments, it will help us help you stay informed with ways to protect the state's valuable natural resources.

Visit Land, Air & Water online at <http://www.eppc.ky.gov>

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# Features

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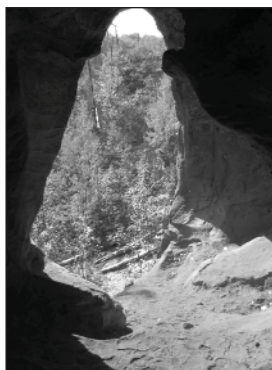
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### Our Cover



This cave entrance, located off Grey’s Arch trailhead in Red River Gorge, showcases the spectacular fall foliage of the area. Photograph provided by Michelle O’Connor, Kentucky Division of Enforcement.

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## Owensboro begins construction on stormwater system

By Alison Simpson  
Division of Water

Owensboro has begun construction of a \$24 million project to improve its municipal separate storm sewer system, the first of its kind to be funded by state revolving fund (SRF) assistance in Kentucky.

The new stormwater system structures will redirect stormwater to five separate stormwater ditches to alleviate serious flooding that for years has plagued the residents of Kentucky’s third-largest city.

Problematic flooding in many areas is due to a combined sewer system that routes much of the stormwater into a

centralized area where it combines with untreated sewage, causing overflows into the city as well as the Ohio River during storm events. In some places the flooding is waist-deep to chest-deep for 24 hours before it subsides.

Joe Schepers, city engineer for Owensboro who is overseeing all aspects of the project, explained that, many years before the city existed, people used stormwater drainage basins in areas that went into separate stormwater ditches in different locations. When the combined sewer was installed, much of the drainage went into that instead.

“Because of that, and the undersized pipes, we get a lot of flooding in a lot of

the streets,” Schepers said.

Completion of the project will alleviate flooding and put stormwater back into the separate stormwater drainage basins. It will also allow the city to remove over 2,000 acres from the combined sewer system, reduce the amount of combined sewer overflow (CSO) into the Ohio River during storm events and reduce the amount of flooding occurring citywide. The project will also enable the Regional Water Resource Agency, which owns the sanitary sewer system in the city, to implement future projects to comply with its consent judgment with the state for the

### Clean Water State Revolving Fund (CWSRF) and Stormwater Projects

Prior to 2002, CWSRF money was available only for wastewater projects. In 2003, a Kentucky community suggested that funding be allowed for use toward stormwater projects. As a result, language was included in the 2002-2005 CWSRF Intended Use Plan/Project Priority List (IUP/PPL) to include stormwater projects.

Owensboro was the first to apply for CWSRF funding for their stormwater project, and was one of the first stormwater projects to be included on the 2007 CWSRF IUP/PPL.

The CWSRF IUP/PPL is now issued on an annual basis.



combined sewer system.

The city arrived at this solution in 1997. City engineers, with the help of HDR Quest Engineers, created a stormwater master plan that identified 72 projects and rated them for the entire city.

“When this project is complete, we will have done 19 of the 72 projects on the list,” Schepers said. Once all 72 are

*Continued on Page 4*

**TOP:** Owensboro plans to eliminate flooding with the new stormwater system.

**LEFT:** The round existing pipe (on the far left) is being replaced with the new triple-box culvert. The existing system is “vastly undersized compared to the new box and why we have so many overflows from the storm to the sanitary sewer,” said Schepers.

Photos provided by the city of Owensboro

# When it rains, it drains

*Porous pavement a valuable stormwater management tool*

By Allison Fleck  
Division of Water



**LEFT:** *Permeable concrete is a mix of coarse aggregate, cement, water and little or no sand. The open-cell structure allows water to infiltrate.*

Photo courtesy of Concrete Decor Magazine

**RIGHT:** *A close-up look at the porous concrete parking lot at Sanitation District No. 1's Public Service Park in Fort Wright, Ky.* Photo courtesy of Jamie Holtzapfel, Sanitation District No. 1

**BELOW:** *The Public Service Park at Sanitation District No. 1.* Photo by Jamie Holtzapfel



Pollution caused by runoff water is the No. 1 contributor to water pollution in Kentucky's streams and lakes. Unlike pollution from industrial and sewage treatment plants, the source for which can be identified, nonpoint source pollution is caused by rainfall or snowmelt moving over and through the ground.

Runoff occurs because traditional pavement is non-porous. In urban areas, water moving across driveways, roads and parking lots carries chemicals and fertilizers, car emissions, oil and antifreeze, battery acid, pet waste, household cleaners and other impurities into our water.

Porous pavements are now being touted as a useful tool in managing stormwater runoff while allowing the soil to perform natural cleansing activities through percolation. There are various types of porous pavements, including porous asphalt, pervious concrete and open-jointed paving blocks.

The U.S. Environmental Protection Agency (EPA) has named porous pavement as a best management practice (BMP) for stormwater pollution prevention, leading to renewed interest in its use. The pavements can also decrease urban heating, replenish groundwater, allow tree roots to breathe and diminish flash flooding.

Unlike traditional pavement, porous pavement contains little or no "fine" materials. Porous asphalt consists of an open-graded coarse aggregate bonded together by asphalt cement. Pervious concrete is created by mixing water and cement-like materials into a paste that forms a thick coating around the aggregate particles. The mixture contains little or no sand and forms a system of highly permeable, interconnected voids that drain rapidly.

The ideal location for porous pavement is in low-traffic areas. Common uses include driveways, emergency access lanes, public parks, alleys, parking lots and bike or walking paths. While some porous asphalt highways are in use in the United States, the current green pavement products do not have adequate

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# Making the switch

By Ricki Gardenhire  
Office of Communications and Public Outreach

**E**nvironmentally conscious consumers across America are making the switch from incandescent lightbulbs to compact fluorescent lightbulbs (CFLs). CFLs use two-thirds less energy to provide the same amount of light and last up to 10 times longer.

However, consumers are also asking how to dispose of the CFLs, which contain about five milligrams of mercury. By comparison, older home thermometers contain 500 milligrams of mercury.

Under state law, Kentucky households can dispose of the bulbs with other house-



hold garbage because modern landfills are designed to handle a certain amount of household hazardous waste. Businesses must dispose of CFLs, fluorescent tubes, batteries and other common “universal wastes” according to hazardous waste regulations.

But, items like CFL bulbs shouldn't be put in the garbage when better options are available. The Kentucky Division of Waste Management encourages consumers to contact their county solid waste coordinator or garbage service provider about recycling or disposal. A list of county solid waste coordinators can be found on the Division of Waste Management's Web site at [www.waste.ky.gov](http://www.waste.ky.gov).

*CFLs use two-thirds less energy and last up to 10 times longer. Photo by Ricki Gardenhire*

Madison County's solid waste coordinator, Shelby Jones, said that she had enough phone calls from concerned citizens to prompt her to find a better means of disposal.

“I found [lightbulbrecycling.com](http://lightbulbrecycling.com) and addressed Madison County Fiscal Court to see if I could purchase one of their compact fluorescent bulb recycling kits,” said Jones. “I was already storing a few bulbs, and I wanted to be able to tell residents that we could take them and they would not end up in a landfill.

“We now have the recycling kit and the bucket comes with bags for each bulb and a pre-paid return label. It is convenient and easy,” added Jones.

Another option is to seal the bulb in two plastic baggies before disposal.

You can also take your spent CFLs to your nearest Home Depot retail outlet, which manages a CFL recycling program.

In addition, nearly every consumer item package has a customer service 1-800 telephone number or e-mail address on the back. Contact the manufacturer or retailer about their responsibility to “take back” items containing hazardous materials in order to protect the environment. Your voice, added to others, can encourage producers to take responsibility for such products at the end of their life cycles.

Discuss with your legislator the possibility of enacting legislation banning CFLs and other mercury containing items from landfills and requiring producers (manufacturers and retailers) to provide “take back” programs at convenient places.

It's also a good idea to keep the sales receipts so that if the bulb burns out prematurely, you may be able to take it to the

## Proper clean up of CFLs

Because there is such a small amount of mercury in CFLs, research indicates that there is no immediate health risk to you or your family if a bulb breaks and it's cleaned up properly. Follow these cleanup guidelines to minimize risks:

- ✓ Wear gloves to protect your hands from glass shards.
- ✓ Keep children and pets away from the area.
- ✓ Sweep up all of the glass fragments. Do not vacuum.
- ✓ Place broken pieces in a sealed plastic bag and wipe the area with a damp paper towel to pick up any stray shards of glass or fine particles. Put the paper towel in the plastic bag as well.
- ✓ Place the sealed plastic bag in a garbage can outside.
- ✓ If weather permits, open windows in the room to ventilate.

store and get a new one.

Regional disposal options include:

- Louisville Metro Government accepts fluorescent bulbs for recycling. For information, visit <http://www.louisvilleky.gov/SolidWaste/Household+Hazardous+Materials.htm>
- Lexington-Fayette County accepts CFLs during a quarterly collection and anticipates a daily drop-off location soon.
- Boone, Kenton and Campbell counties accept minimal amounts of mercury from residents at their field office. An America Recycles Day event will take place Nov. 13. CFLs will be accepted from residents and small businesses.
- Hardin County residents can call Patsy Whitehead at Nolin Rural Electric at 270-765-6153 for CFL information.

*Continued to Page 12*

# Owensboro begins construction on stormwater system

*Continued from Page 1*

completed, they'll go back and take care of the smaller problems.

"These 72 will form the backbone, or trunk system, of the entire city," he said.

Funding for the project includes a Clean Water State Revolving Fund (CWSRF) loan for \$22,900,578.18 and local funds totaling \$1,631,056 that come from occupational tax earmarked for stormwater projects.

Owensboro began seeking out a CWSRF loan in September 2006. First, they had to get on the project priority list before they could apply for a loan. Once on the list, the loan application was com-

pleted in October 2007.

Misty Sampson, local government analyst with the Green River Area Development District, worked with Schepers to assemble the loan application and all additional information required by the Kentucky Infrastructure Authority (KIA) and the Division of Water. Because a project of this kind hadn't been considered for CWSRF funds in the past, assembling all the necessary information was a challenge.

"We worked with Sandy Williams at KIA to package the project so that they could see the financials, what's going into planning and design and construction,"

project is that putting several hundred acres of CSO back into the stormwater system will also alleviate flooding in outlying areas.

"Twenty blocks away where we have flooding, that will get better too because not as much water is going through those pipes," Schepers said.

The reaction from the community has been very positive. Schepers said they have been talking with property owners about how it will impact them both positively and negatively.

"We're putting a lot of pipes down streets, so there will be residents that can't get into or out of their garages. Short-term, everyone is recognizing they'll be ill-affected. They're so tired of the flooding, not being able to get into their houses, having to get up and move their cars in the middle of the night [to anticipate flooding]. It's positive. They're leery about construction in their yards, but overall it's been a very positive response."

Schepers said the best positive impact has been that SRF funding makes it possible to do all the necessary work right away. In the past, projects were being done as funds permitted.

"We would do one, then we would go for a few years, then do another project. It would have taken us 30 to 50 years to do it pay-as-you-go," explained Schepers. "But with the SRF loan we can do it in four years. The people paying the taxes are getting to see the benefit in four years as opposed to 30 years. And we're hiring local people to get the jobs done. Everything is benefiting as far as the residents are concerned."

Schepers said that because of the city's topography, eliminating all flooding may not be possible, but it will still be greatly reduced. "Our goal is that in a 25-year storm event, water in the street will be shallow enough for emergency vehicles to get to every place in the city."

Future plans include taking additional areas off of the combined sewer system as time and future funding allow.



**TOP:** Flooding in Owensboro has ranged from waist-deep to chest-deep in some areas. **ABOVE:** A "Road Closed" sign warns residents of high water. Photos courtesy of the city of Owensboro engineering department

Sampson said. The project covers two phases of completion and five stormwater separation ditches.

"It's been a learning process and that's good, because there are SRF funds out there for our communities. There are a lot of communities that could apply," said Sampson. "It was a good learning process for me, and it's going to be a good funding source for Owensboro."

To date, construction on two of the five ditches has begun. By fall 2008, all five projects should be under construction. Schepers said it could take up to three years to finish everything.

Schepers explained that in addition to the direct impacts in areas with heavy flooding, one residual impact of the



# DNR embraces wetlands and stream restoration

By Linda Potter  
Department for Natural Resources

Stroll with me across the field that gently rises and falls before us. The sounds, the smells make this city dweller smile and remember the thrill of finding an arrowhead unexpectedly or looking down and seeing a four-leaf clover. That same excitement returned when I learned about Tom Biebighauser—a bit of a “stranger in your own backyard.” Here’s a guy once “hidden” in the Daniel Boone National Forest (DBNF) in Morehead, Ky., whose reputation as reigning wetlands expert has him traversing the globe. In fact, North America is 1,000 wetlands richer due to his efforts. His work in the creation and re-establishment of wetlands is particularly applicable to Kentucky’s landscape with its history of past mining practices. Given Biebighauser’s success and the potential for an additional reclamation technique, the Department for Natural Resources (DNR) recently formalized its support by partnering with the U.S. Forest Service in the establishment of the Center for Wetlands and Stream Restoration.

Biebighauser, wildlife biologist on the DBNF since 1988, will lead the wetlands portion, while Arthur C. Parola, Ph.D., director of the Stream Institute at the University of Louisville, will spearhead the streams effort. Their respective roles will be to coordinate projects directly on the ground and serve as coordinators of the partners’ needs and interests in sharing expertise. The center will not be a “bricks and mortar” affair, but a conceptual one consisting of a network of partners whose common goal is to advance the efforts to restore or establish wetlands and streams.

This partnership provides DNR the opportunity to collaborate with various federal, state and local governments, universities, nonprofit organizations and for-profit corporations for the development and transfer of wetlands and stream restoration technologies. The vision is to establish a national network of partners that support and participate in workshops, publications, educational activities and the actual construction or

*Continued on Page 8*

View additional wetland projects at <http://picasaweb.google.com/tombiebighauser>





# Exotic forest pest targets North American pines

By Diana Olszowy  
Division of Forestry



## woodwasp

The future health of Kentucky's pine trees may be in jeopardy. Another forest pest, the Sirex woodwasp, has migrated into the United States.

The Kentucky Division of Forestry was recently asked by the U.S. Forest Service to monitor for this exotic pest that is thought to have entered the U.S. inside infested wood crates and pallets.

A native from Europe and northern Africa to Mongolia

and southern Russia, the Sirex woodwasp is generally considered a minor pest. In contrast, the wasp is considered a major threat to areas it has invaded such as New Zealand, Australia, South Africa and South America. It has recently invaded North America, where it was detected across the pine-heavy southeastern U.S. and in New York, Michigan, Pennsylvania and into Ontario.

Sirex woodwasps can attack living pines, while native

woodwasps attack only dead and dying trees. The most vulnerable pines are loblolly, shortleaf and Virginia.

Three to six months following an attack, the needles of the infested tree initially wilt and then change color from dark green to light green, to yellow and finally to red.

Females are attracted to stressed trees. They drill their needle-like ovipositors (located under a spear-shaped plate at the tail end) into the outer

sapwood to inject a symbiotic fungus (*Amylostereum areolatum*), toxic mucus and eggs. The fungus and mucus act together to kill the tree and create a suitable environment for larval development. Infested trees may have resin beads at the egg-laying sites, which are more common at the mid-bole level. Larval galleries are tightly packed with very fine sawdust. As adults emerge, they chew round exit holes that vary from one-eighth to three-eighth-inch in diameter.

The Sirex woodwasp has a dark metallic blue or black



body with reddish-yellow legs. The male has a black abdomen at the base and tail end, with orange middle segments. Males have black hind legs.

Collect and submit any suspect woodwasps to your county extension office for positive identification.

**TOP:** The female woodwasp uses its ovipositor to inject fungus, mucus and eggs into a stressed pine. **ABOVE:** Pine needles of infested trees eventually turn from yellow to red. **LEFT:** The male woodwasp has a distinct orange middle with black hind legs. Photos provided by [www.forestryimages.org](http://www.forestryimages.org)

**E**nvironmental cleanup of the old Derby Tank and Car Cleaning site near Ekron in Meade County was completed this summer under supervision of the Superfund Branch in the Energy and Environment Cabinet's Division of Waste Management.

The remediation phase cost \$852,872. Previous phases involving waste removal and site investigation, including soil and water sampling, bring the total project to \$1.2 million.

The 42-acre Derby Tank site was home to a railcar and tanker cleaning/refurbishing facility that began operation in 1974. The business closed, and the property was abandoned in 1994.

After the cleanup, this is again a usable piece of property back in circulation and available for a business or industry, said Harry Craycroft, Meade County judge-executive.

Ekron Mayor Gwynne Ison said, "The Superfund has just really saved us with their grants and willingness to clean this up."

From around 1995 to 2003, a series of interim removal actions was conducted under state oversight including off-site disposal of residual wastes consisting of



**TOP:** The paint building on the Derby Tank site in Meade County after the soil cap and new fencing were installed.

**ABOVE:** Inside the paint building. The raised section used to be train tracks where cars were brought in to be painted.

Photos by Nathan Hancock

## Derby Tank environmental cleanup complete

*State Superfund project cost more than \$1.2 million*

**By Eva Smith-Carroll**  
**Division of Waste Management**



corrosive/caustics, heavy metals, petroleum-based solvents and products from the railcars, including animal fat.

This spring, following a preremediation investigation and development of a plan, a cleanup contract was awarded to Early Environmental Contracting of Shelbyville.

The Derby Tank remedial project involved installation of a secure fence around the property; filling and capping subsurface building foundations and process units; removal and off-site disposal of contaminated soil, residual waste from sumps and piping, and a waste cell that was the principal subsurface containment basin for tank and railcar clean-out residue; and installation of a nine-acre soil cap consisting of 1 to 1.5 feet of compacted soil and a vegetative cover.

The remediation project was determined complete in August, well ahead of the contract expiration date in November. Repairs to Smith Road, the primary route to the site, were conducted under a separate contract.

Money for the cleanup came from the Hazardous Waste Management Fund, a trust created by the General Assembly to collect fees from hazardous waste generators. The fund is used for emergency cleanups and cleanups at sites where there are no viable responsible parties.

Since 1993, there have been 66 major state-led Superfund sites remediated. During that same period, 480 smaller sites—

for example abandoned or leaking drums, mercury assessments and removals, and soil cleanups—have been conducted.

### Property was home to distilleries

Back in the 19<sup>th</sup> century, apple and peach orchards thrived in Meade County. This abundance of fruit led to the opening of several small distilleries, and the county's apple brandy was reputed to be the best in the world.

In 1889 J.A. Barry opened a brandy distillery on what is now the Derby Tank property near Ekron. Meade County historian Robert Chism recalls talking to an elderly man who said wagons would be loaded up with apples and pears the previous evening and taken to the distillery early on Saturday mornings.

After prohibition ended in 1933, the plant was converted for use as a whiskey distillery. Chism said at one point the property was used to store and age whiskey. There were six warehouses, but those structures have since been torn down.

Around 1974, the property became the site of Derby Tank Car Cleaning and Manufacturing.

# DNR embraces wetlands and stream restoration

Continued on Page 5



**LEFT:** Rowan County High School students monitor a wetland for wildlife species. Photo by Tom Biebighauser

**PHOTOS FROM PAGE 5:** (top) Ephemeral wetland, Beaver Creek in Menifee County. (bottom, left to right) Wetland at Manchester Elementary in Clay County near a picnic shelter (photos by Tom Biebighauser); a Calico pennant dragonfly will use the wetland for breeding and will also feast on mosquitoes (photo by Richard Bledsoe); Parker-Bennett-Curry Elementary students in Bowling Green cover a synthetic liner used to teach environmental education and help reduce runoff. Photo by Trish Sowell

restoration of wetlands and streams.

Numerous wetlands have already been restored or created on public land, private lands and at schools throughout the commonwealth. These projects serve as demonstrations of what this partnership can accomplish. Since 2005, the center has helped develop 78 wetlands, of which 62 are outdoor classrooms, and conducted 24 wetland workshops in the U.S. and Canada. The center intends to construct 264 wetlands covering 389 acres and train 1,445 individuals in wetland restoration by 2009.

The majority of these wetlands function as outdoor classrooms with teachers and students devising innovative approaches for their use. One such project is planned at Tyner Elementary in Jackson County, Ky., in conjunction with the Army Corps of Engineers. The project will replace a 36-year-old aeration treatment plant with a natural waste treatment system that incorporates the use of a series of wetlands. While natural systems using wetlands are successfully treating waste in many parts of the nation, this is the first such known system for Kentucky. Replacing a mechanical system with a natural one offers the following benefits:

- Improved water quality.
- Lower building, operating and maintenance costs.
- Decreased energy costs.

- Reduced need for chemicals that can harm the environment.
- Provide habitat for aquatic plants and wildlife species.
- No special training or licensing

required to maintain the system.

According to Biebighauser, "Nowhere is it written that constructed wetlands have to look ugly. We're designing wetlands at Tyner Elementary to add beauty to the school grounds. These are going to be places where students and parents see wildlife and flowering plants like wild iris, cardinal flower and rose mallow."

Across Kentucky, educators are finding that their students embrace the outdoor classrooms with enthusiasm. The potential for integrating activities in math, science, social studies, writing and the arts makes for an exciting learning experience for both teacher and student. In addition to improved water quality, habitat improvement for fish and wildlife, other benefits include carbon sequestration, the re-establishment of native plants and the protection of endangered and threatened species.

A common concern occasionally surfaces that wetlands are a breeding ground for mosquitoes. Biebighauser dispels this myth.

"We're finding that building a wetland at a school is an excellent way of reducing mosquito populations in a community," said Biebighauser. "The dragonfly larvae, salamander larvae, whirligig beetles and back swimmers living in the wetland are excellent mosquito predators. Mosquitoes may check in, but they won't check out!"

DNR enthusiastically joins this partnership as it coincides with its mission, namely that of overseeing activities and programs related to forestry, conservation, mining and land preservation. DNR has long provided technical assistance, educational programs and funding to assist the general public, landowners, institutions, industries and communities in conserving and sustaining Kentucky's natural resources. It envisions assimilating these state-of-the-art techniques for wetland and stream restoration into its evolving store of tools that continue to enhance, protect and beautify Kentucky.

## DNR and its restoration partners

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Agri-Drain Corporation  
Stantec Engineering  
Copperhead Engineering  
Anderson County schools (Tennessee)  
Jackson County schools  
Upper Susquehanna Coalition (New York)  
Kentucky Transportation Cabinet

# Answering the call for help

Kentucky Division of Forestry assists  
North Carolina as massive  
wildfire spreads at Pocosin Lakes  
National Wildlife Refuge

By Lynn Brammer  
Division of Forestry



**ABOVE:** *Firebreaks and agricultural fields stopped the spread of fire on the north side of Evans Road.* Photo by USFWS

**LEFT to RIGHT:** *The burn site is part of the home range of the endangered red wolf.* Photo by USFWS Sean Russell  
*KDF firefighters lay a sprinkler system to keep containment lines moist along Evans Road.* Photo by KDF Belinda Wilkins-Smith  
*An aerial view of smoke from the Pocosin Lakes National Wildlife Refuge.* Photo by USFWS Tom Crews  
*A crew of KDF firefighters in North Carolina.* Photo by KDF Belinda Wilkins-Smith



**W**hen a blaze in eastern North Carolina broke from containment in early June, it was obvious that help would be needed to fight the spreading wildfire. The fire, known as the Evans Road Fire, started as a result of a lightning strike and quickly spread to nearby Pocosin Lakes National Wildlife Refuge. On June 11, the first crew of firefighters from the Kentucky Division of Forestry (KDF) was mobilized to help fight the massive fire. On Aug. 2, the fourth and final crew returned home safely as conditions improved in the refuge.

Due to the low fire activity in Kentucky this summer, KDF was able to send 44 employees to help suppress the Evans Road Fire.

**Joining the compact**

Southern states have often relied on each other to help suppress wildfires. In fact, a compact between nine southeastern states, known as the Southeastern Interstate Forest Fire Compact, was established for the purpose of providing mutual aid to help fight forest fires. The compact allows for reimbursement of personnel and equipment costs to states that render aid. Division of Forestry employees who sign up for compact duty are usually mobilized for 14 days. Assignments typically involve harsh conditions including extreme temperatures, rugged terrain and minimal living arrangements, but the division rarely has a shortage of volunteers.

**A fire-prone ecosystem**

Pocosin Lakes National Wildlife Refuge, home to a diverse population of wildlife, including the endangered red wolf, is a fire-prone ecosystem where the predominant vegetation type is the southeastern shrub bog. The word “pocosin” actually refers to the shrubby swamp lands that are typical of the region. Pocosins are characterized by a dense growth of broadleaf evergreen shrubs, scattered pine and peat soils. The mixture of peat and charcoal from periodic burnings leave the land susceptible to wildfires, particularly ground fires, during times of drought. Although natural fires are common in pocosins, refuge managers try to prevent large wildfires from occurring by using prescribed burns.

**Kentucky Division of Forestry employees involved in out-of-state fire incidents in 2008**

- |                     |                       |
|---------------------|-----------------------|
| Bridgette Abernathy | Nathan Hall           |
| Chris Adams         | Mike Harp             |
| Matt Adkins         | Matt Haywood          |
| Bernie Andersen     | Brandon Howard        |
| Dwayne Anderson     | Bill Knott            |
| James Armstrong     | Don Lam               |
| Jody Benningfield   | Haley Loyd            |
| Jerry Brown         | Wade Maggard          |
| Ken Brown           | Ron Meyer             |
| James Bryan         | John Mink             |
| Jared Calvert       | Chris Nevins          |
| Michael Carter      | Chris Osborne         |
| Morgan Combs        | Luke Saunier          |
| Tim Crowell         | Chris Scott           |
| Seth Dykes          | Herman Slone          |
| Cody Evans          | Jeff Smith            |
| David Fletcher      | Nick Valentine        |
| Josh Frazier        | Justin Watt           |
| Michael Froelich    | Alan Watts            |
| Jason Gabbard       | John Wethington       |
| Eric Gracey         | Belinda Wilkins-Smith |
| Sarah Gracey        | Floyd Willis          |
| Steve Graves        | Dennis Woolard        |
| Mike Hale           | Brian Yager           |

Prescribed burns are used only under appropriate weather conditions and are intended to remove undesirable vegetation and burn out excess fuels (trees, shrubs and underbrush). Unfortunately, the hot, dry conditions of this summer persisted and ground fires became the biggest challenge as they burned deep beneath the soil and resurfaced causing flare-ups in different areas.

**Fire suppression**

Early suppression efforts at the refuge involved containing the fire with firebreaks, which were created by removing fuels in the path of the fire. Air tankers were also used in an attempt to extinguish the blaze. As the fire continued to spread, officials decided to try pumping large volumes of water from one of the lakes located on the refuge. High-volume pumps were put in place and sprinkler systems were positioned along containment

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# “Cap and Trade” systems for pollution control denied

By Lona Brewer  
Division for Air Quality

In what appears to be a growing trend during the past few months, several federal regulations to control air pollution have been vacated (declared null and void) by the courts. Two of the latest were the Clean Air Mercury Rule (CAMR) on Feb. 8, 2008, and most recently, the Clean Air Interstate Rule (CAIR) on July 11, 2008. Both decisions were handed down by the District of Columbia Circuit Court of Appeals.

The Clean Air Mercury Rule was established by U.S. Environmental Protection Agency (EPA) as a measure to control mercury emissions from coal-burning power plants across the U.S. This rule set a nationwide cap on mercury emissions and also allowed sources to buy and trade allowances. This system, known as a “cap and trade” system, would have resulted in an allowable cap for Kentucky of 1.525 tons per year in 2010, and a further drop to .6 tons per year by 2018. Current estimated annual emissions of mercury from coal-fired power plants according to EPA’s 2007 Toxic Release Inventory are 1.771 tons.



*Coal-burning power plants emit an estimated 1.7 tons of mercury each year in Kentucky.* Photo by Division for Air Quality

Kentucky had already established a regulation to implement CAMR and has since repealed that regulation, which cited the federal rules vacated by the courts. Currently, the best available information has EPA drafting another regulation under Section 112 of the Clean Air Act to address mercury emissions from coal-burning power plants; however, a time frame has not been established.

The CAIR rule also set up a cap and trade, market-based system, designed to address emissions of nitrogen oxides (NO<sub>x</sub>) and sulfur dioxide (SO<sub>2</sub>) on a regional basis. Nitrogen oxide emissions contribute to ozone formation, and both NO<sub>x</sub> and SO<sub>2</sub> emissions

contribute to fine particle (PM2.5) pollution, as well as impaired visibility.

In planning for state implementation of the Clean Air Act, Kentucky used models that included the pollution reductions that would have occurred due to CAIR. Therefore, the vacating of the CAIR program could hamper EPA approval of state demonstrations that areas will attain and continue to maintain both the ozone and fine particulate standards, as well as succeed in visibility improvement required by the Clean Air Act.

At this time, it is unclear what EPA’s next steps will be, and what it will require of states as these issues continue to unfold.

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## Online renewal system is a winner

By Mary Jo Harrod  
Division of Compliance Assistance

The Operator Certification Program put its online renewal system to the test this spring when it was time for the drinking water treatment and distribution operators to renew their license. Two staff members processed 1,955 renewals, most of them between April 1 and June 30. As a result of the online system, the entire workload was processed without developing a backlog, which had previously been a problem for the program.

Julia Kays, Certification and Licensing branch manager, said, “Fifty-five percent of the operators renewed their license online, which ultimately saved us nearly 28 days in time that would have been spent processing paper renewals. This also saves the operators’ time, and they can access their continuing education records online.”

The Department for Environmental Protection is continuing to develop opportunities to use online and electronic tools that increase the agency’s efficiency, while making it easier for regulated entities to comply with Kentucky’s environmental standards.

## EQC seeks Earth Day nominations

The Environmental Quality Commission (EQC) is seeking nominations for its 2009 Earth Day awards. Persons or entities that display an outstanding commitment to Kentucky’s environment are eligible. The nomination form is available on the EQC’s Web site at [www.eqc.ky.gov](http://www.eqc.ky.gov) or contact Johnna.McHugh@ky.gov by e-mail or by telephone at 502-564-2674. The deadline for nomination receipt is Dec. 15, 2008. Nominations can be sent electronically to McHugh or mailed to 58 Wilkinson Blvd., Frankfort, KY 40601.

The EQC Earth Day awards ceremony will be April 17, 2009, at Berry Hill Mansion in Frankfort.

# When it rains, it drains

*Continued from Page 2*

load-bearing strength to endure heavy road traffic.

Finley Messick, executive director of the Kentucky Ready Mixed Concrete Association, said proper siting, installation and maintenance are key factors in a successful porous pavement project.

“A lot of people don’t realize how critical it is to have proper site analysis,” said Messick. This includes hydrologic considerations, geotechnical evaluation and pavement selection and design.

In addition to their environmental benefits, porous pavement has aesthetic appeal. The availability of pavers in a variety of textures and colors make them a decorative addition to the landscape. Porous pavement also contributes to enhanced air quality by lowering atmospheric heating through its lighter color and lower density.

While the benefits of installing porous pavement can be high, so can the price. The EPA advises, however, that porous pavement, when used properly, may eliminate or reduce the need for land-intensive BMPs, such as dry detention or wet retention ponds.

Proper maintenance of porous asphalt and concrete is essential to its success and lifespan. Because it is prone to clogging, permeable pavements need to be vacuumed or pressure-washed three to four times a year. The accumulation of salt and sand, for example, could be problematic if not cleaned off.

An excellent place to see porous pavement is at the Sanitation District No. 1 Public Service Park in Fort Wright, Ky. The park features a variety of environmental BMPs, including porous asphalt, pervious concrete, permeable pavers and a biofiltration swale.

“This concrete is located in the front parking lot of the Public Service Park. The stormwater that hits this portion of our parking lot filters through the concrete and eventually ends up in Banklick Creek, which runs behind our office,” said Jamie Holtzapfel, stormwater permit compliance manager, of Sanitation District No. 1.

Researchers at the University of Kentucky College of Agriculture suggest the use of pervious concrete to provide a safe flooring surface for horse-handling areas. Infiltration of the wash water reduces the splashing of ponded or puddle water and reduces the danger of slipping. The pervious quality also allows beneficial bacteria to thrive in the aggregate voids and work and destroy harmful pathogens found in animal waste.

For more information about pervious concrete, visit the Web site of the Kentucky Ready Mixed Concrete Association at [www.krmca.org](http://www.krmca.org).



**Ground fires continue to burn at Pocosin Lakes National Wildlife Refuge.**

Photo by NFCS Buster Rogers

## Answering the call for help

*Continued from Page 10*

roads to keep the firebreaks moist. Since July, pumping operations and steady rains have significantly reduced the fire danger. Although the fire is now 90 percent contained, ground fires still burn in some areas of the refuge and will likely continue to burn until a significant rainfall floods the swamp. To date, the fire has burned 40,704 acres. Fire managers continue to monitor the area and even though out-of-state crews have been sent home, managers are prepared to call them back if the fire begins to actively burn again.

While wildfires are an inevitable occurrence in forests, fire management and suppression is a necessity to protect resources and ensure habitat for wildlife. Consequently, forestry agencies have made fire management a priority. The KDF is fortunate to have well-trained and experienced employees who are dedicated to fighting wildfires. A special thanks is well-deserved by all of the KDF staff who have provided this service.

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## Making the switch *Continued from Page 3*

### Search of the web

Additional information on CFLs and mercury can be found on the following Web sites:

- Mercury information from the U.S. Environmental Protection Agency (EPA) <http://www.epa.gov/mercury/>
- CFL information from the EPA <http://www.energystar.gov/cfls>
- Home Depot’s CFL Recycling Program <http://www6.homedepot.com/ecoptions/index.html>
- Recycling kits: [http://www.lightbulbrecycling.com/cf\\_bulb.html](http://www.lightbulbrecycling.com/cf_bulb.html)  
<http://www.1000bulbs.com/Recycling/>  
<https://www.thinkgreenfromhome.com/ThinkGreenFromHome.cfm>  
<http://www.recycleabulb.com/>  
<https://veoliaes-ts.com/RecyclePak/RecyclePak%20Order?id=1064>



disrupting their growth and possibly killing the plant or tree. Additionally, significant wind can cause farmers to lose valuable top soil.

Soil disturbance in one location can definitely affect areas around the world. An interesting discovery is that dust particles from Asia and Africa can be found in the United States. According to a NASA News Web site, an article published in 2001 stated, “Scientists recently used NASA satellites to track a cloud of dust up to 2,000 km. long as it left Asia, drifted across the Pacific Ocean and traversed North America from Alaska to Florida, raining dust and possibly pollutants over the continent.”

To reduce fugitive emissions, businesses implement a variety of best management control strategies, such as using windbreaks and barriers, frequent water applications, application of soil additives, control of vehicle access, vehicle speed restrictions, covering of open storage piles, use of gravel or water at site exit points to remove caked-on dirt from tires and tracks, washing of equipment at the end of each work day and prior to site removal, wet sweeping of public thoroughfares and work stoppage.

For more information about fugitive dust and the way it affects daily living, read the fact sheet and brochure on the Division of Compliance Assistance’s Web site at <http://www.dca.ky.gov/complianceassistance/resources/Air+Resources.htm>.

Other sources of information include:

**Environmental Protection Agency, Office of Air and Radiation:** [www.epa.gov](http://www.epa.gov)

**Idaho Department of Environmental Quality:** [http://www.deq.state.id.us/air/prog\\_issues/pollutants/dust\\_control\\_plan.pdf](http://www.deq.state.id.us/air/prog_issues/pollutants/dust_control_plan.pdf)

**NASA News:** [http://science.nasa.gov/headlines/y2001/ast26jun\\_1.htm](http://science.nasa.gov/headlines/y2001/ast26jun_1.htm)

**Nebraska Department of Environmental Quality:** <http://www.deq.state.ne.us/Publications/048b60f1d4f66c38e05256c55007724ce?OpenDocument>

**Nevada Small Business Development Center:** <http://www.nsbdcnep.org/pages/fugitivedust.htm>

**University of Missouri Extension:** <http://extension.missouri.edu/xplor/agguides/agengin/g01885.htm>

# Cloud of dust

*Fugitive dust creates problems for everyone*

By Mary Jo Harrod  
Division of Compliance Assistance

Along with the stunning beauty of fall colors comes the seasonal dryness and dust—from unpaved roads, plowed fields, construction sites and other sources. Known as “fugitive dust,” it is defined by Kentucky regulation as “the emissions of any air contaminant into the open air other than from a stack or air pollution control equipment exhaust.”

Fugitive dust comes from wind or human activities that disturb the soil or unpaved roads. Unpaved roads alone produce about 10 million tons of particulate matter air pollution (solid particles and liquid droplets suspended in the air) each year in the United States. Mining, manufacturing, transportation and utilities also produce fugitive dust.

Why is fugitive dust so bad? This dust, though usually not toxic, creates a harmful atmosphere because it sends particulate matter into the air, having an adverse effect on the health of sensitive populations, such as babies, the elderly and anyone with respiratory problems. Fine particles are permanently trapped in the outer reaches of the lungs, reducing lung capacity. Persistent coughing and wheezing and increased susceptibility to respiratory infections are more likely after exposure to fugitive dust, along with irritation to eyes and nasal tissues. Even short-term exposure can increase the severity of respiratory problems.

Visibility on unpaved roads is greatly diminished by fugitive dust, which increases the chances of accidents. Dust coats buildings and vehicles and manages to invade interior spaces, becoming a nuisance to the occupants. Electronics and mechanical equipment also suffer from the abrasive and damaging nature of dust. In severe cases, plant pores can become clogged,



*Fugitive dust problems in Kentucky.*

Photos provided by Division of Compliance Assistance





Advocate member **WKYT-TV** in Lexington launched its new environmental/conservation initiative called Project Green on Earth Day this year. Robert Thomas, news director, said, "It's a stationwide commitment to environmentalism and preserving what makes Kentucky so special for generations to come. Under the Project Green franchise, we generate content for our newscasts and a micro site of [wkyt.com](http://wkyt.com)."

Project Green created a great deal of excitement from people in the newsroom, as they quickly discovered there are hundreds of inspiring stories to cover that are interesting and important for the environmental cause. By making a commitment to environmental reporting, people at the station have been amazed at the variety of things going on in the community to promote greener living. The station aired the story of an eco-commuter who rides his bike several miles each day to and from work. Another story highlighted a Lexington builder who is committed to building environmentally friendlier homes that use less energy. Reporters have also shined the spotlight on the availability and benefits of buying locally grown food, which doesn't require huge amounts of fuel for transporting across long distances.

By going to [www.wkyt.com/project-green](http://www.wkyt.com/project-green), visitors can find information and tips on everything from recycling to water conservation. It also serves as an archive of the stories that have aired on the station.

"The feedback from our viewers has been outstanding," said Thomas. "They've e-mailed and called with suggestions. Since we launched Project Green, several other television stations owned by Gray Television have followed our example."

**TRANE**, a master member of KY EXCEL, has a green team consisting of 39 hourly and salaried employees who meet weekly to undertake projects.

"We are currently forming 'green teams' to work on various environmental projects, such as recycling and reducing our use of water and electricity," said Joe Jefferies, environmental, health and safety manager at TRANE, which is located in Lexington. "Several employees have volunteered to be a part of one of the teams."

In April during Earth Day, O. J. Rogers and Alison Randolph gave away 1,200 Northern red oak seedlings. Also, due to



## KY EXCEL Members "Go Green" in Creative Ways

By Mary Jo Harrod  
Division of Compliance Assistance



**TOP, CENTER and BOTTOM photos:** TRANE's "green team" consists of 39 employees who work on environmental projects in the plant such as increased recycling, water and electricity reduction. The team encourages employee carpooling by providing parking spaces to those vehicles only. Alison Randolph (center photo) distributed 1,200 tree seedlings during this year's Earth Day celebration. Photos provided by TRANE

the increase of gas prices and to encourage carpooling, the teams dedicated several parking spaces for motorcycle use and carpool vehicles only.

Another project was to eliminate the use of paper towels. TRANE currently uses more than 365 cases of paper towels per year, which is enough to cover 27 football fields and costs over \$19,000.

Brad Castle, Elizabeth Denny, Jonathon Garret and Willie Cole researched options and worked with others to begin purchasing and installing 22 turbo hand dryers throughout the plant. By using turbo hand dryers, the plant will save more than \$22,000 annually and greatly reduce waste.

*Continued on Page 15*

# KY EXCEL Members “Go Green” in Creative Ways

Continued from Page 14

The **General Motors Bowling Green Assembly Plant** is the home of the Chevrolet Corvette and the Cadillac XLR. Accepted into KY EXCEL as a leader member in May 2008, the major production operations include spot and mig welding, application of sealers and adhesives, a primer surface system, waterborne basecoats, solvent-borne clear coats and final assembly.

A critical piece of the facility’s ISO 14001 Environmental Management System is the adopted reduction targets for 2008—1 percent energy reduction, 1 percent water consumption reduction and 3 percent nonrecycled waste reduction. All reduction targets are based on 2007 performance.

While maintaining production, quality and safety, the plant reduced its natural gas usage by 9.5 percent from January through July 2008, compared to the same period in 2007. Similar results in electricity (reduced 17.2 percent) and water (reduced 12.8 percent) were achieved. These savings were the result of aggressive energy management and the recent completion of various projects including:

- Relocating hot water pumps closer to the end user.
- Reducing hot water loop temperatures.
- Installing variable speed drives on pumps and fans.
- Shutting off production-related equipment and lighting after production ends.
- Recycling water and reusing it throughout the process.

General Motors Bowling Green Assembly has a resource management contract with Waste Management Upstream to help reduce waste and increase recycling. During the first seven months of 2008, the facility achieved a 5 percent reduction in the amount of nonrecycled waste landfilled per vehicle, as compared to 2007.

Partner member **city of Madisonville** has many projects currently underway that promote KY EXCEL’s objective to encourage citizens to protect Kentucky’s environment. Below are a few of the projects that Madisonville will undertake this year:

- The CSXT Railroad Relocation Project calls for the existing CSXT railroad tracks to be relocated from the Madisonville downtown area to the east side of town. The abandoned rail line will open up a necessary right of way for a new north-south corridor through the downtown area, eliminate 15 dangerous at-grade railroad crossings and provide commercial and retail development opportunities. Additionally, the rail line may be used as a Health Way Walking Trail, which would promote healthy activity, provide transportation alternatives and also complement other planning activities.

- The South Main Sanitary Sewer Interceptor Project will help alleviate many sanitary sewer and water quality-related problems, both inside and outside the city limits. Phase 1.A of the project will eliminate five city sewer lift stations, two private lift stations and one package treatment plant. Additionally, Phase 1.A will provide the backbone for expansion of future sewer services to many parts of the county that are currently plagued by tap-on bans, lot restrictions, substandard sanitary sewer services and illegal dumping. The project encompasses approximately 2,300 acres within the Clear Creek watershed, which is a tributary of the Tradewater River.

- The Madisonville Sanitation Department Recycling Center currently recycles all yard waste, which is then converted to mulch and made available free to local residents after paying a small loading fee. Additionally, the city of Madisonville is leasing space to Midwest Recycling to recycle paper, cardboard, plastics and metal. The end result of the city’s efforts is a 35 percent reduction in materials sent to the landfill. The sanitation department also purchased the Route Smart program to realign garbage collection routes to maximize fuel efficiency and worker time. After implementing the program, the department reduced the number of garbage routes from 12 to nine, and reduced the number of garbage collection days from five days to three.

For more information about the KY EXCEL program, call 800-926-8111 or visit the Web site at [www.KYEXCEL.ky.gov](http://www.KYEXCEL.ky.gov).

## New KY EXCEL Members

Since the summer issue of *Land, Air & Water* was printed, a number of businesses, individuals, organizations and communities have elected to join KY EXCEL, Kentucky’s voluntary environmental leadership program. Join KY EXCEL today. Call 1-800-926-8111 for more information or visit <http://www.KYEXCEL.ky.gov>.

### Advocate

5H Technologies Inc.—Paducah  
Akers Family—Versailles  
Lisa Butler—Frankfort  
London Downtown Main Street Program—  
London  
Marvel Golf Club—Benton  
Mossy Ridge Farm—Harrodsburg  
Veronica Roland Household—Frankfort  
Russell Area Technology Center—Russell  
Saint Agnes Parish—Louisville  
The Kentucky NEED Project—  
Crestview Hills  
WDKY Fox 56 Television—Lexington  
Jessica Wilhoite Household—Frankfort  
WKYT-TV—Lexington

### Leader

General Motors Bowling Green  
Assembly—Bowling Green  
IT Springwire—Florence

### Partner

Delta Air Lines Inc. SDF Station—  
Louisville  
Emerson Power Transmission Corp.  
Headquarters & National  
Distribution Center—Florence  
Emerson Power Transmission—GearCO—  
Maysville  
Murakami Manufacturing USA Inc.—  
Campbellsville

### Master

Dana Corp.—Elizabethtown  
International Paper—Henderson  
Kentucky Utilities Co.—Tyrone  
Generating Station—Versailles  
Kimberly-Clark Corp., Owensboro  
Operations—Newman  
Louisville Gas and Electric Co.—Paddys  
Run Generating Station—Louisville  
Maker’s Mark—Loretto  
Sara Lee Food & Beverage—Claryville  
Facility—Alexandria  
Technology Conservation Group—  
Louisville

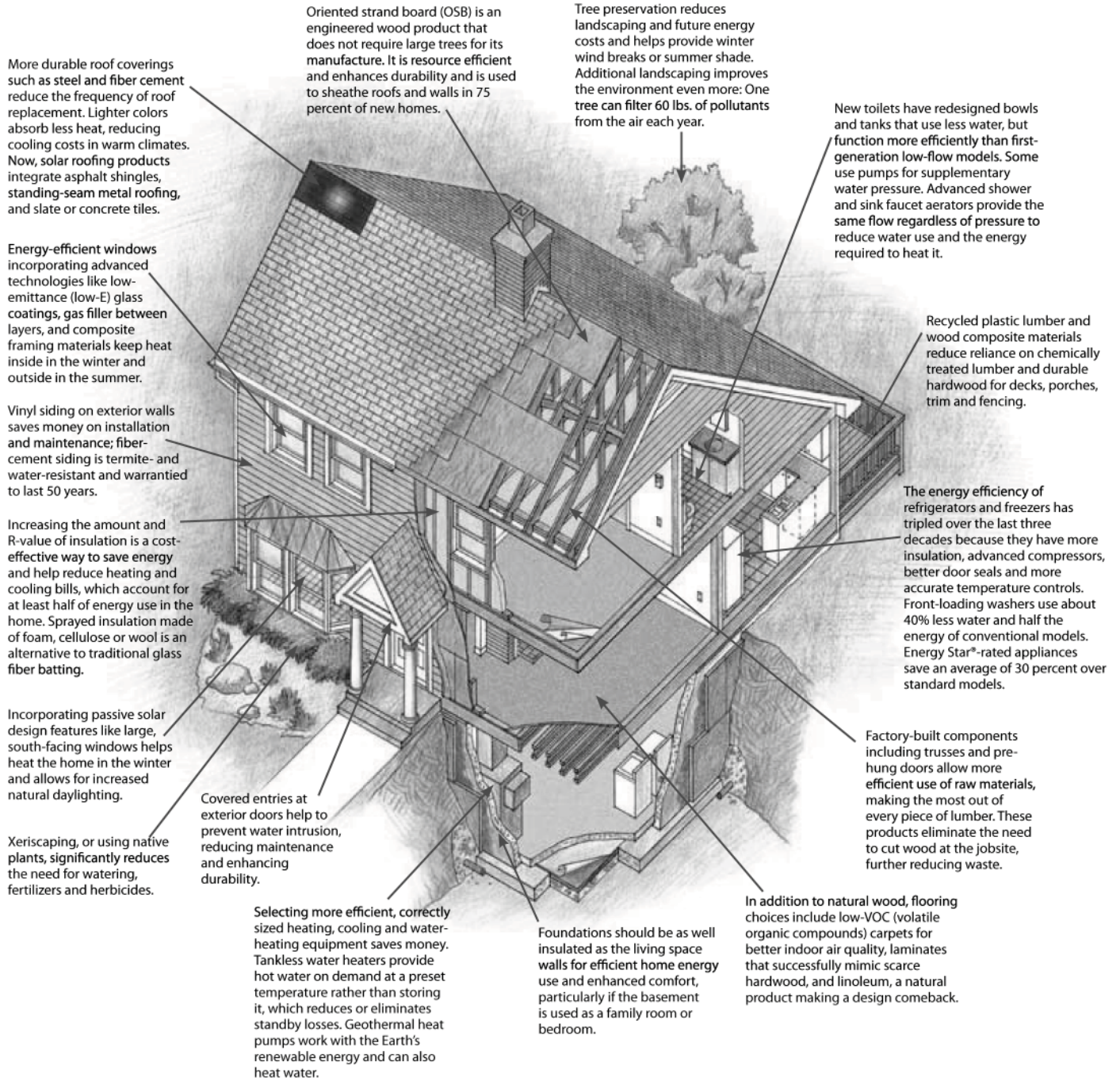
# WHAT MAKES A 'GREEN' HOME?

“Greening” your home is a commitment. The time you spend incorporating energy-efficient and earth-saving techniques into a newly constructed or previously built home is well worth the effort.

There are a number of ways to reduce the amount of water, energy and natural resources you consume in your home—from simply installing a more energy-efficient water heater or water-conserving toilet to installing energy-efficient windows to using recycled and engineered wood products during any construction project. Once you start thinking “green,” it becomes a way of life and changes the way you look at everyday living.

If you’re buying a new home, make sure it’s ENERGY STAR certified for a life time of energy savings.

Check out these useful tips below and find ways to include them in your remodeling or home-building projects:



Source: National Association of Home Builders  
Illustration: Rick Vitullo



## Musket balls among the goldenrod

By Joyce Bender  
Kentucky State Nature  
Preserves Commission

### Volunteers search grounds for evidence of Revolutionary War at Blue Licks.



**TOP:** BRAVO members survey Blue Licks Battlefield State Resort Park. Photo provided by BRAVO  
**MIDDLE RIGHT:** Short's Goldenrod (*Solidago shortii*). Photo by Nick Drozda, KSNPC  
**ABOVE:** A musket ball with linen patch imprint found at Blue Licks. Photo by BRAVO

The Kentucky State Nature Preserves Commission (KSNPC) recently participated in an archaeological survey at Blue Licks Battlefield State Resort Park. Dr. Adrian Mandzy from Morehead State University, along with BRAVO (Battlefield Restoration and Archaeological Volunteer Organization), a volunteer group from New Jersey, searched for evidence of the last battle of the Revolutionary War that occurred during the 18th century. Blue Licks is the site where the British and their Native American allies defeated the Americans on Aug. 19, 1782.

Consequently, the KSNPC recognizes the park as home to the largest populations of the state and federally endangered Short's goldenrod (*Solidago shortii*). Fifty-three acres have been dedicated as a state nature preserve to protect this rare species and its habitat.

Mandzy and BRAVO searched the grounds with metal detectors, then later will map and catalog their finds in an effort to better understand the dynamics of the battle. Any artifacts recovered will be given to the park for display and interpretation in its museum.

During the hunt for buried artifacts, the KSNPC was on hand to protect the goldenrod from being damaged by checking the sites before digging was performed.

Dedicated professionals equipped with metal detectors and trowels scoured the grounds for any sign of the battle. Several of Mandzy's students helped with the search, and one young man was thwarted from digging several times by the presence of the goldenrod's rosette of leaves. However, he took it with good humor even when teased that his detector would be more helpful to botanists since it kept finding goldenrod.

The first find of the day was a perfectly round musket ball. One volunteer commented



that "we are looking at a lead ball that someone dropped possibly 226 years before."

The crew continued their search along several remnants of the old bison trace and uncovered additional musket balls, including a flattened mass of lead that was deformed by impact with an object. One section of the bison trace becomes entrenched and leads down slope toward the Licking River, possibly one of the routes that Daniel Boone and his men took while advancing or retreating. More study on the locations and condition of the musket balls remains, and trajectory analysis will hopefully provide a better understanding of how the battle played out across the landscape. However one thing can now be reported. According to Dan Sivilich, president of BRAVO, none of the 10 balls recovered were fired from a smooth-bore musket, which was traditionally used by British troops. Each ball had a rifled pattern, which indicates that Native Americans or Americans fired the shots. One of the musket balls even bears the impression of the weave of the linen patch that was used to fire the ball from the rifle.

After the survey, Mandzy and BRAVO expressed satisfaction with their finds. Their teams were diligent during their archeological hunt, but mindful of Kentucky's rare goldenrod. A special thanks goes out to them for their work in preserving our cultural heritage, as well as taking care of our natural heritage, too.



# Farm bill requires assessment of forest resources

By Lynn Brammer, Division of Forestry  
Photograph by Cindy Schafer, Office of Communications

In Kentucky, there are 11.9 million acres of forestland, and 89 percent of that forestland is privately owned. With the help of the 2008 Farm Bill, forests will be better protected and standing tall for future generations.

The farm bill, also known as the Food, Conservation and Energy Act of 2008, contains more provisions for family forests than any other since the 1990 Farm Bill.

Some of the forestry initiatives of the bill include:

- Cost-share assistance to forest resources damaged in natural disasters.
- Funding for cost-share and easement programs.
- Grants for local governments to own and manage blocks of forested lands for

multi-use purposes.

- Improved opportunities for forest landowners to participate in and receive funding from the Environmental Quality Incentive Program (EQIP). EQIP is a voluntary program for farmers that promotes agricultural production and offers financial and technical assistance in the installation of best management practices on eligible land.

Additionally, the farm bill establishes a long-term statewide assessment to identify critical forest resources and threats to these areas. The assessment will be completed by state forestry agencies by June 2010.

The Kentucky Division of Forestry will begin developing its assessment in the coming months. The assessment must

identify conditions and trends of forest resources, threats to forest lands and areas that are considered priorities.

In addition, the statewide strategy must address threats identified in the assessment and the resources needed to accomplish the strategy.

The Division of Forestry will work closely with the State Stewardship Coordinating Committee and its many partners to ensure that the forest resource assessment provides an accurate portrayal of Kentucky's forests. The assessment will also be used to identify areas where investments of federal and state money need to be made to keep these forests sustainable for the future.

The division's target date to complete the assessment is January 2010.

# KACD convention honors Kirk, others for dedication to the environment

By Martin Bess  
Division of Conservation

For 65 years, the Kentucky Association of Conservation Districts (KACD) has met to keep its members and other attendees up to date on environmental topics, federal and state programs and new technologies available to deal with the future of conservation. This year, the convention of districts came together to discuss the 2008 Farm Bill, energy and water quality issues, conservation district operations and to share success stories.

Each year, the convention recognizes individuals that go



*Steve Coleman (left), director of the Division of Conservation, and Kevin Jeffries (right), KACD president, stand with Curtis Kirk following the presentation of his Special Recognition Award.* Photo submitted

above and beyond the call of preserving the state's natural resources. It also honors producers who take the initiative to implement sound, innovative and cost-effective conservation techniques and best management practices, while demonstrating and educating other members of the community about the problems and solutions associated with soil and water conservation.

The following individuals were recognized:

- Kevin Jeffries, KACD president, received the 2008 Conservation Person of the Year award. Jeffries began his distinguished service in his own local district in 1983. He has served in numerous capacities on the local conservation district board of supervisors, as well as KACD secretary-treasurer from 1996 to 2000, vice president from 2000 to 2004 and president from 2004 to 2008.
- Richie Farmer, commissioner of the Kentucky Department of Agriculture, was presented the 2008 Distinguished Service Award because of his dedicated service to agriculture in Kentucky and his support of the conservation district program.
- Greg Abston received a Special Recognition Award for serving more than 24 years on his local conservation district board in several leadership positions. He also served as area

director for the 7th Area District and completed two consecutive two-year terms as treasurer for KACD.

- Curtis Kirk, assistant director of the Division of Conservation, received a Special Recognition Award for his 21 years of service to the division and the conservation districts in Kentucky. He has led the administration of the equipment loan program, the infrastructure loan program and led the staff support of the Agriculture Water Quality Authority, just to name a few of his efforts.

- Leigh Ann Hushfield, 11<sup>th</sup>-grade science teacher at Harrison County High School in Cynthiana, received the Secondary Education Teacher of the Year award.

- Rodney and Stewart King received the Outstanding Conservation Cooperator award. They operate a 115-herd beef cattle farm near Spear's Creek, a major tributary to Herrington Lake in Boyle County. Mary Ann Hockensmith was state runner-up. The Hockensmith beef cattle and thoroughbred horse farm is located on Georgetown Road in Franklin County and has been in operation for the past 60 years.

- Butler County Conservation District and Knox County Conservation District received the Outstanding Conservation Districts Awards.

- Pendleton County Conservation District and the Bluegrass District Office of the Division of Forestry received the Forestry Award.

- Woodford County Conservation District received the Soil Stewardship Award.

- Ryan Chaplin, Campbell County, received the KACD Auxiliary Natural Resource Scholarship.

- Ryan Sallie, Montgomery County, received the KACD Auxiliary George Crafton Scholarship.

- Model Laboratory High School in Richmond won the Kentucky Envirothon.

## No-Till and Prescribed Grazing Hero Awards

For the first time in KACD convention history, individuals were recognized for their leadership role in no-till conservation and prescribed grazing systems. These landowners are known for their ability to do an excellent job of implementing a no-till strategy or rotational grazing system on their farming operations. They also exhibit leadership, energy, a willingness to share ideas, mentor others and host field days and workshops on their farms.

- 2008 No-Till Heroes: Ken Staley, Bath County; James Taulbee, Bath County; James L. Simmons, Logan County; James and Robert Barton, Fayette County; and Rick and Phillip Castlen, Daviess County.
- 2008 Prescribed Grazing Heroes: Mary Ann Smith Davis, Fayette County; and Ruby Brooks, Marshall County.

# Andrews retires after 44 years

By Elizabeth Robb Schmitz  
Division for Air Quality

In many ways, Diana Andrews is the heart and soul of the Division for Air Quality (DAQ), having provided support and guidance to the entire staff for many of her 44 years of service to the commonwealth. Retiring as the assistant director of the division after 14 years in that role, Andrews also served as branch manager for Technical Services and chief chemist for the Laboratory Section.

During her service in the Technical Services Branch, Andrews helped establish an air quality monitoring program in Kentucky, which surpassed that of any other state in the southeast.

As assistant director, she issued the final quality check in the review chain of all permits issued by the division. Andrews has easily reviewed and issued thousands of air quality permits throughout the years. Since June 2006, she has issued more than 1,100 permits alone.

Andrews has served as the chairperson and a board member for the Kentucky Small Business Advisory Panel, and

*Diana Andrews served as Kentucky Division for Air Quality's assistant director for 14 years.*

DAQ photo



has further advised the Kentucky Emergency Response Commission, the Ozone Transport Advisory Group, the Visibility Improvement State and Tribal Association of the Southeast, and the Southern Appalachian Mountain Initiative. She also assisted in the formation of KY EXCEL, Kentucky's only voluntary environmental leadership program.

In all of these roles, Andrews has given the division a strong voice and respected presence on air quality issues

that impact the health of the citizens of the commonwealth.

"Diana has been a mentor to staff, a friend to co-workers, but above all she has been a leader in the continuing effort to protect public health and the commonwealth's air quality," said DAQ Director John Lyons. "Her knowledge, expertise and remarkable work ethic will be greatly missed."

Thanks Diana, for devoting your career to benefiting Kentucky.

## Contests continue in new format

For 64 years, young Kentuckians have participated in the annual Writing and Jim Claypool Conservation Art contests. This year, with only a few minor changes, students will once again have the opportunity to express their appreciation of the environment by putting pen (or markers) to paper.

Deciding there was no better time to "go green," contest partners, Kentucky Association of Conservation Districts (KACD) and Kentucky Farm Bureau, used the 2008 contest theme "Working Trees: Kentucky's Renewable Future" to support their decision to go paperless.

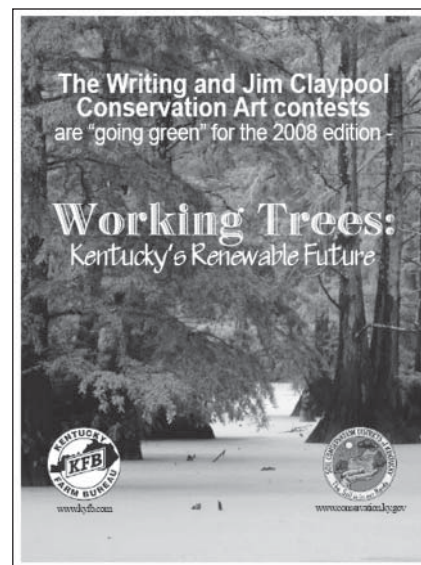
No printed materials will be available at conservation district offices as in years past. Instead, beginning Sept. 1, contest materials will be available on KACD and Kentucky Farm Bureau Web sites at <http://www.conservation.ky.gov/> and <http://www.kyfb.com>. The Web sites will also

provide a teachers guide, contest entry form, and principal and district report forms.

"About 90 million tons of paper are consumed in the U.S. every year," said Terri Bradshaw, public relations director for Kentucky Farm Bureau. "That's nearly 700 pounds per person. If we say we support conservation, then we certainly have to practice what we preach—thus the electronic-only version."

Steve Coleman, director of the Kentucky Division of Conservation agrees. "Conservation consists of big and small efforts," he said. "The purpose of the publication and the art and writing contests is to teach students good stewardship of our natural resources. I'm excited that we can lead by example."

Contest rules and guidelines will see little or no changes. Prizes will increase slightly, awarding \$500 U.S. savings



bonds to the state winners, \$300 bonds for second place and \$100 bonds for third. Regional- and county-level winners will receive \$100 and \$50 savings bonds, respectively. All winners will receive personalized plaques and certificates.

# Seedlings now available

The Kentucky Division of Forestry maintains two nurseries that raise many native hardwood and conifer species. The Morgan County Nursery in West Liberty and the John P. Rhody Nursery in Gilbertsville provide seedlings in bundles of 10 and 100 that average 12 to 18 inches in height. They are ready to plant upon arrival at your doorstep.

The 2008-2009 seedling order form is available on the Division of Forestry Web page at <http://www.forestry.ky.gov/seedling/>. A list of tree species is also available on this Web site.

If you live outside of Kentucky, please check with your local state forestry agency to determine if it has seedlings available. If it does not and you would like to order from the Kentucky Division of Forestry, contact the division at 800-866-0555 for additional shipping and handling costs required for out-of-state shipments.

Please note that out-of-state orders will not be accepted until Feb. 1 and all orders are subject to refusal.



*Rows of seedlings at the Morgan County Nursery.*  
Photo by Ricki Gardenhire, Office of Communications



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