

Land Air & Water



Kentucky Energy and Environment Cabinet

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Land Air & Water

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From the Secretary's Desk

On June 25, 2013, President Barack Obama announced his Climate Action Plan, which has three major components to address greenhouse gas (GHG) emissions and climate change impacts. The action plan states that the "Administration is putting in place tough new rules to cut carbon pollution...." Those rules will include carbon dioxide (CO₂) emission reductions from existing power plants. The deadline for the U.S. Environmental Protection Agency (EPA) to propose CO₂ emission targets for existing power plants is June 2014. Final standards are to be issued in June 2015, and states then have a year to submit their compliance plans.

Kentucky's per capita carbon footprint is 50 percent higher than the national average, and during the last several years, we've initiated a number of policies and programs to reduce our emissions, from all sectors. A key driver of Governor Steve Beshear's 2008 energy plan was to be prepared for federal climate regulations and policies. To build on the energy plan, we convened the Kentucky Climate Action Plan Council, targeted federal stimulus funding toward effective energy efficiency and renewable energy projects, and more recently launched the Stimulating Energy Efficiency in Kentucky initiative. An overarching theme of these programs has been our obligation to address GHG emissions in a meaningful and affordable manner.

The imposition of GHG limits on existing plants will have significant effects on electric generation technology and fuel choices, and ultimately on the price of electricity. The extent of the impacts will depend on the regulatory approach EPA eventually takes, with much national discussion currently focused on a Natural Resources Defense Council (NRDC) proposal that places an emissions rate reduction based on a statewide fleet average. Although the NRDC proposal has been touted by some as being flexible and equitable, some states would most definitely carry a heavier burden than others because the reductions are targeted only on one sector—the electric utility sector—and because the emissions threshold all but precludes coal. While it is not uncommon that sector-specific regulations affect states differently depending on the prevalence of a given sector in each state, greenhouse gases are different because there are multiple sources of emissions across sectors, including transportation.

As a state that is more than 92 percent reliant on coal for electricity generation, it will come as no surprise to most people that Kentucky's burden under rules for existing power plants will be among the highest if EPA follows an emissions rate approach like the one proposed by the NRDC. The concern we have is that EPA is using its authority under the Clean Air Act to impose emissions targets that are based on an assumption that carbon dioxide capture and storage technologies are commercially available, or will quickly



Continued on Page 12

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Our Cover

Courthouse Rock area within the Red River Gorge.

Photographed by Dale Burton, who works in the Division of Mine Permits

Features



2 **Urban superfund cleanup**
Louisville's Park Hill residents get clean soil for their yards.

5 **Seasoned travelers**
Migratory songbirds call Kentucky home each year.

9 **Improving water quality**
Montgomery County gets community involved in watershed project.

13 **Chairman retires**
KHLCF's Chairman Martin hands over gavel to Kessler.

Contents

From the Secretary's Desk	Inside cover
Kentucky Clean Diesel Program makes an impact	1
Urban forestry — Park Hill tree evaluation	2
Shedding new light on energy efficiency and in the backyard.....	3
Scrap yard scrapped.....	6
Recycling becomes second nature to Heaven Hill employees.....	7
Land named for retired board chairman	13
Raising awareness about invasive species.....	14
KHLCF to sponsor video contest.....	15
New state regulation requires certification for wastewater labs.....	16
Crumb rubber: a valuable end use for Kentucky's waste tires.....	17
Brownfield redevelopment brings tourism revenue	18
Award	19
Seedling nurseries: feature tree— <i>Black walnut</i>	Back cover

Kentucky's Clean Diesel Program makes an impact

Since 2008, grant program has helped fleets clean up their act



LEFT: A new propane-powered school bus will replace a 1992 model diesel bus. **RIGHT:** Representatives of United Propane, River Region Propane, board members and staff of the Crittenden County Board of Education, Superintendent Dr. Rachel Yarbrough and State Rep. Lynn Bechler stand beside the propane-powered school bus. Photos by Crittenden County Schools

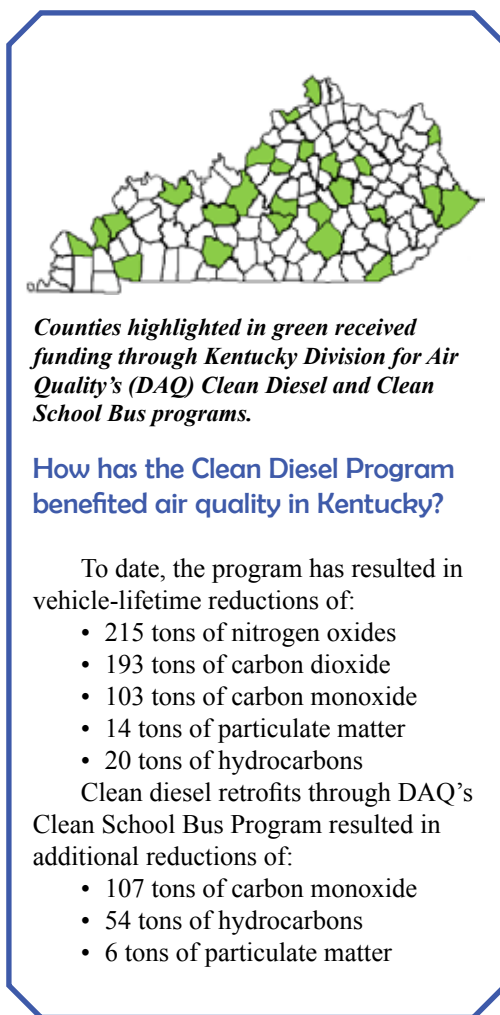
By Roberta Burnes
Division for Air Quality

Diesel engines are the workhorses of our nation's fleets, providing more power and fuel efficiency than engines that burn gasoline and natural gas. Nationwide, some 20 million mobile source diesel engines power a variety of machinery from transportation to construction, industry to farms.

But all of that power also takes a toll on the air we breathe.

Through grants totaling nearly \$1 million over the past five years, the Kentucky Division for Air Quality (DAQ) has administered the Kentucky Clean Diesel Program, which has enabled hundreds of school buses, garbage haulers and other heavy-duty vehicles to reduce their impact on air quality from harmful diesel emissions.

Kentucky has seen a significant improvement in its air quality since the enactment of the Clean Air Act 43 years ago. Health-based air quality standards, air monitoring, state air permitting programs, and pollution control technologies have all contributed to cleaner air across the Commonwealth and the nation. However, these mandated programs are only part of the big picture.



Counties highlighted in green received funding through Kentucky Division for Air Quality's (DAQ) Clean Diesel and Clean School Bus programs.

How has the Clean Diesel Program benefited air quality in Kentucky?

To date, the program has resulted in vehicle-lifetime reductions of:

- 215 tons of nitrogen oxides
- 193 tons of carbon dioxide
- 103 tons of carbon monoxide
- 14 tons of particulate matter
- 20 tons of hydrocarbons

Clean diesel retrofits through DAQ's Clean School Bus Program resulted in additional reductions of:

- 107 tons of carbon monoxide
- 54 tons of hydrocarbons
- 6 tons of particulate matter

“Voluntary efforts can significantly benefit air quality at the local level,” says DAQ Director John Lyons. “Reducing diesel emissions from our school buses and other large fleets means cleaner air—especially for our children.”

In Kentucky, a number of school districts have been the recipient of funding from the Diesel Emissions Reduction Act (DERA) that was passed by Congress in 2005 and is designed to reduce vehicle emissions from older diesel fleets by funding clean diesel projects at the state and local level.

Earlier this year, Crittenden County Public Schools received a round of funding that allowed the district to purchase a propane-powered school bus—a first for Kentucky. Propane burns cleaner, produces fewer smog-producing hydrocarbons and eliminates emissions of particulate matter. The propane-powered bus replaces a 1992 model diesel school bus from Crittenden's fleet. The funding will also retrofit 14 additional diesel school buses with emission-control technologies that will reduce tailpipe emissions.

Crittenden County Schools Superintendent Rachel Yarbrough is excited about the opportunity to pilot the first propane school bus in the Common-

Continued on Page 4



\$1 million soil cleanup at Park Hill

Agencies, residents move forward with largest urban superfund cleanup in Kentucky history

By Virginia Lewis
Division of Waste Management

The Kentucky Department for Environmental Protection (DEP) and the U.S. Environmental Protection Agency (EPA) are working with Park Hill residents to clean up their yards. Their properties neighbor the former pesticide manufacturing facility known as Black Leaf Chemical, a superfund site in Louisville, Ky. Last year, DEP and EPA took soil samples of residential properties and the surrounding areas and found that contamination had spread from the Black Leaf Chemical site to the nearby properties, leading to now the largest residential superfund cleanup in Kentucky history.

The first scoops of contaminated soil were excavated on Aug. 19 on properties where landowners had granted access. In those residential yards being cleaned up, the first 1 foot of soil is removed and replaced with clean dirt and grass or seed. Residents and owners are consulted on their preferences regarding existing trees (see adjacent article *Urban forestry*) and shrubs. To give residents access to fresh vegetables that they might have been able to grow in their yards, DEP is providing vouchers to Grasshoppers, a local food distribution company that offers fresh local produce.

Cleaning up the yards is an important action being taken to reduce residents' exposure to contamination from the site.

"Protecting people is the top priority for DEP and EPA in this cleanup," said Tim Hubbard, Kentucky Division of Waste Management assistant director. "Replacing soil and grass is an important step forward in doing that. We hope all bordering property owners will agree to allow cleanup."

Other protective measures taken by DEP and EPA include barriers that are now in place to stop surface contamination from leaving the site, improved fencing around the site, and the operation of air monitors during the residential cleanup to ensure proper air quality.

The number of yards that will be cleaned up depends on the number of property owners who allow access. DEP and EPA have attempted to contact the owners of 75 parcels. At the present time, 57 residential properties are scheduled for cleanup and more access agreements are expected.

Continued on Page 8



Urban forestry

KDF evaluates trees in the Park Hill neighborhood

By Jennifer Turner
Division of Forestry

Residents of the Park Hill neighborhood in Louisville are concerned about their trees. Contaminated soil is being removed from their backyards, and unfortunately, many of their mature trees will have to go, too.

The Kentucky Division of Forestry's (KDF) urban forestry program works with cities and communities on the care and management of urban trees. KDF foresters are trained to evaluate the health and condition of urban trees and can assist in choosing the proper tree species for planting in urban areas.

Continued on Page 8

ABOVE LEFT: The top 1 foot of soil is removed from property owners' yards and replaced with clean dirt. Photo by Dick Brown **ABOVE: Sean Godbold measures the circumference of a tree in Park Hill.** **BELOW: Cody Munday takes a soil sample from a backyard.** Photos by Cody Munday



Shedding new light on energy efficiency...and in the backyard

By Eileen Hardy

Department for Energy Development and Independence

Many residents in rural communities rely on their outdoor yard lights to provide safety and security, especially in the fall and winter seasons when daylight is shorter. However, outdated lighting fixtures consume large amounts of electricity, which in turn increase energy bills. Inefficient lighting such as mercury vapor fixtures also produce a negative environmental impact and increase maintenance and replacement costs.

Like a good neighbor, the Hickman-Fulton Rural Electric Cooperative Corp. (RECC) is responsive to the needs of its customers for efficient, reliable electricity at affordable rates. As part of its overall plan to achieve more sustainable operations and reduce energy costs, the member-owned utility distributor decided it was time for an upgrade. Hickman-Fulton RECC provides electric service to residential and commercial customers of Hickman, Fulton, Carlisle and Graves counties in far western Kentucky.

Armed with a \$316,000 grant from the Kentucky Department for Energy Development and Independence through an environmental mitigation fund, Hickman-Fulton RECC implemented an energy-efficient outdoor lighting project. Funds were used to remove outdated mercury vapor and metal halide fixtures and replace them with energy-efficient Light Emitting Diode (LED) outdoor yard lights.

Back in the 1990s, the only place you would see an LED light would be on the on/off buttons of electrical devices. Today, with technological breakthroughs, LEDs are the next big thing in efficient lighting, appearing in a variety of applications including residential, industrial and commercial use. With a lamp life of 100,000 hours (compared to 24,000 with the old fixtures) the new LED yard lighting operates 70 percent more efficiently than other light sources. The 15-year lifespan makes them virtually maintenance free.

“This energy efficiency lighting project is the first of its kind for the cooperative and an integral part of our overall plan to achieve more sustainable operations and reduce energy costs,” said Greg Grissom, Hickman-Fulton RECC president/CEO.

Throughout the summer months, crews installed more than 1,715 high-efficiency 60W LED outdoor lighting fixtures. The

majority were installed as outdoor yard lights for the cooperative’s customer-residents, with 22 installed for street lighting. The project is expected to save 852,000 kilowatt hours or \$49,300 annually. Annual reductions in air emissions are estimated to be 919 pounds of nitrogen oxide, 2,900 pounds of sulfur dioxide and more than one ton of carbon dioxide.

“Reduced energy usage equates to reductions in air emissions,” added Grissom. “Because the LED lights are reducing the amount of pollutants into the environment, we are reducing our carbon footprint—it’s a new milestone for us.”

As the smallest cooperative in Kentucky and serving one of the counties with the highest rate of unemployment, Hickman-Fulton RECC understands utility savings have a tremendous benefit. As early as mid-July, customers with the new

LED outdoor yard lights were seeing rate decreases by almost half of the previous rate—dropping from \$11.60 to \$6.50 per month.

“We have been so pleased with this project,” said Debbie Weatherford, business and member services manager. “We serve an area that has a large elderly population and also has one of the highest unemployment rates in the state and realize that even a savings of around \$5 a month has a positive impact.”

Overall reaction to the bright white LED lights has been positive, although customers did notice the illumination radius and color were slightly different than previous lights.

Weatherford said, “About halfway through the installation, we had four consumers who didn’t like them, but when we went on site and talked with them, they changed their mind. Now they really like the bright light. Many folks realize the biggest benefit will be in the winter months when daylight hours are shorter.”

“I believe we have found a precise way to ensure that the cooperative is meeting the needs of our consumers,” said Grissom. “It serves as an example of how environmental and economic sense goes hand in hand. The high-efficiency light fixture significantly reduced monthly fees, and at the same time, we are reducing our carbon footprint and doing our part to add energy efficiency to our electric distribution system. It is a win-win for TVA, Hickman-Fulton RECC, the environment and our consumers.”

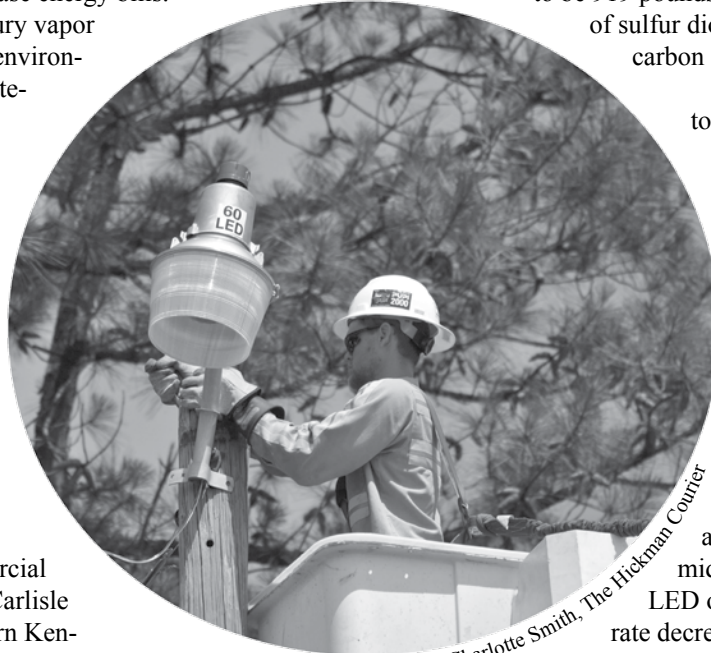


Photo by Charlotte Smith, The Hickman Courier

Kentucky's Clean Diesel Program makes an impact *Continued from Page 1*

wealth. "The Kentucky Clean Diesel Grant awarded to our schools created a new energy-efficient pathway that will benefit our students and the community," she said.

Based on data that will be collected through the end of the school year, Wayne Winters of the Crittenden County Schools Transportation Department said that Crittenden County will report its findings—that will include safety, drivability, performance, durability and cost to run—to the Kentucky Department of Education. "This information will be used to determine if propane-powered school buses are the correct fit for Kentucky schools," he said.

How is DERA helping Kentucky?

Since 2008, DAQ has administered the statewide Clean Diesel Program funded through DERA. To date, DAQ has distributed \$986,257 in grant monies for clean diesel projects throughout Kentucky, benefiting school districts, local governments and independent businesses.

Advancing technologies make it possible to reduce harmful emissions from diesel exhaust. Diesel particulate filters, catalytic converters and engine repowers are available to help clean and green older vehicles. And, outdoor or *ambient* air quality isn't the only thing that improves. Cleaner emissions mean cleaner air for passengers as well, since exhaust is often pulled into the vehicle cabin when doors are opened.

In 2009, DAQ awarded an additional \$1.73 million through the Clean School Bus Program to help reduce emissions from Kentucky school buses in 27 school districts. Ultimately, 773 school buses were retrofitted with clean diesel technology.

The clean diesel project isn't exclusively for school districts, however. Previous DERA projects have funded school bus and waste hauler retrofits as well as farm equipment and clean diesel particulate filters installed on vehicles.

Independent owner-operators Paul and Lynn Fouts of Pike County used clean diesel funds in 2009 to help invest in a truck replacement installed with an auxiliary power unit, which greatly reduces the need for engine idling in long-haul trucks.

Also in 2009, Lexington-Fayette Urban County Government (LFUCG) received DERA funds to install waste hauler retrofits.

"We have made significant strides in improving the air quality in Fayette County," said Tracey Thurman, administrative officer for LFUCG. "We will achieve a reduction of 1.12 tons fine particulate matter, 1.06 tons hydrocarbons and 4.96 tons carbon monoxide in Fayette County over the project's lifetime. That's an annual

the cancer risks from diesel emissions are about 10 times higher than the cancer risks from all other hazardous air pollutants combined.

The average lifetime of a heavy-duty diesel engine is 25 to 30 years. Recent EPA fuel and engine standards have helped new, on-road diesel engines significantly reduce emissions—but the standards do not apply to the estimated 11 million older diesel engines still in use nationwide. That is why it is so important



Lexington-Fayette Urban County Government used DERA funds to install diesel particulate filters on its waste haulers to improve air quality and increase health benefits.

Photos by LFUCG

health benefit on the order of \$66,000 per year."

Why Clean Diesel?

Diesel exhaust contains a mixture of fine particles, nitrogen oxides (NO_x), volatile organic compounds and more than 40 hazardous air pollutants. These pollutants contribute to a wide range of public health problems including asthma, lung cancer, and many serious cardiac and respiratory diseases. According to the U.S. Environmental Protection Agency (EPA),

for state and local governments, schools districts and independent businesses to know about Kentucky's Clean Diesel Program, said Lyons.

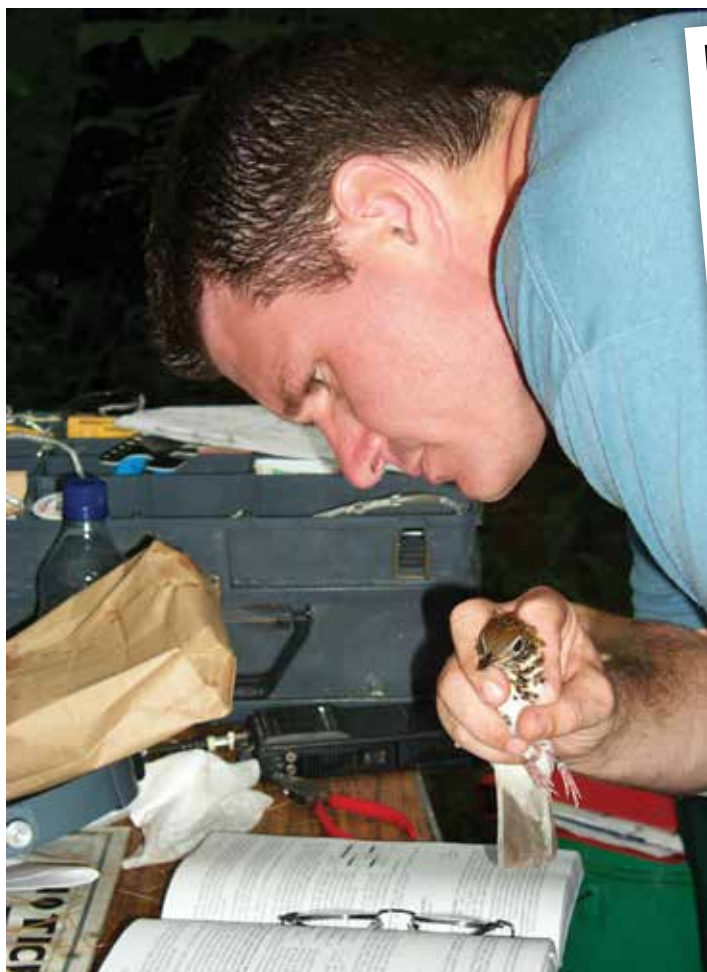
"The program enables us to get money directly into the hands of communities and businesses to improve Kentucky's air quality," says Lyons. "As a result, Kentuckians are reaping the rewards of cleaner, healthier air."

DAQ anticipates a new round of funding for clean diesel projects this fall. To learn more, visit <http://air.ky.gov> during the month of October for Request for Proposal and eligibility information or call 502-564-3999.

A remarkable . journey

Migratory songbirds are seasoned travelers

By Cindy Schafer
Office of Communications



FAR LEFT: *Zeb Weese gently holds a wood thrush while reading about its species at a banding station.* EEC staff photo

LEFT: *Weese removes a captured hooded warbler from a net.* Photo by Dave Shuffett, KET

BELOW: *A hooded warbler.* EEC staff photo

sources, which combine for a great place for these tiny songbirds to breed and raise young.

“The Kentucky Heritage Land Conservation Fund works with biologists from the Kentucky State Nature Preserves Commission, the Division of Water, and other agencies to inventory plant and animal species to determine what kind of habitat management is appropriate on natural areas that are purchased by the state,” said Zeb Weese, a biologist with the Kentucky Heritage Land Conservation Fund (KHLCF).

“Protection of Kentucky’s forests and waterways are essential for the survival of these colorful songbirds, many of which are declining due to habitat loss.”

The KHLCF and the Kentucky State Nature Preserves Commission study the habits of neotropical migrants at a bird banding station in Rock Cress Hills State Nature Preserve on the Kentucky River in Franklin County. They

fruits, nectar and insects, is more abundant. In an amazing natural phenomenon, these migrants—that only weigh a few ounces—travel the long journey back and forth between the south and Kentucky’s forested sites to complete their nesting cycle. At certain times of the year about 90 species nest in large tracks of intact forests like the Red River Gorge and along large waterways like the Kentucky River. These areas offer a diverse mix of soils, plants and adequate food

As vacationers and snowbirds, we often travel cross country to warmer climates during the winter to bask in the tropical breezes of south Florida and even the Caribbean and Mexico. As impatient as we humans are, it only takes a couple of hours by plane to reach our destination. However, for migratory songbirds, reaching their winter destination can take weeks and even months. Unlike humans, birds

don’t fly south to avoid the cold temperatures of the north; an internal clock and changes in the length of day help them determine when it’s time to travel to where there is available food and shelter.

Several species of migratory songbirds, otherwise known as neotropical migrants, breed in Kentucky during the summer months but fly to South and Central Americas and the Caribbean during winter where food, like

Continued on Page 8

Scrap yard scrapped

Site transformed into city park



By Virginia Lewis
Division of Waste Management

As time goes by and communities change, land use changes, too. The city of Crab Orchard in Lincoln County was once home to the Lincoln Scrap Yard, a property that operated as an automotive scrap yard for many years. In 2005, it was donated to the city of Crab Orchard by Judy and Cecil King.

Located in the heart of the city on Main Street, the property was an eyesore, but the city saw its potential and was interested in reusing it. In 2006, the Kentucky Department for Environmental Protection conducted Phase I and II environmental property assessments using Kentucky Targeted Brownfields Assessment funds.

At the time, the site was a potential threat to human health and the environment. Dusts and waters that came from the facility had the potential of transporting pollutants from the site to neighboring properties and homes.

Fortunately, the environmental assessment results indicated that it would be possible to close the site, safely manage



contamination, and reuse the property. That news prompted the city of Crab Orchard to make plans to redevelop the site into a new park.

The cleanup plan, funded by the U.S. EPA Brownfield Program and a Kentucky Pride Community Enrichment Grant, was implemented by the city, its environmental consultant and the state. The cleanup, completed in July 2012, included demolishing an aging and unsafe building on Main Street and capping contaminated soil across the entire site to mitigate exposure risk to the community.

State Superfund Project Manager

Brent Cary, one of three managers who worked extensively on the project, describes part of the work.

“We assisted in characterization of the site, removed an enormous amount of debris, placed groundwater wells on site, performed extensive monitoring, aided in the development of surface control measures, and worked with the community and their environmental consultant to finalize the site management plan,” he said.

Through this collaborative work, an unsafe property was transformed into a beautiful city park that now serves as a focal point for the entire community.

“This has been a long time coming, and we are so thrilled of the outcome,” said Nancy Baker, city clerk of the city of Crab Orchard. “We installed a basketball court, playground equipment for small children and a walking track for older ones,” she continued. “A new green space is filled with an assortment of trees, shrubs, plants and flowers, some of which were donated by community residents.”

Communities working on these types of projects are advised to keep in touch with their project manager.

“A number of issues are likely to arise on any project,” said Wesley Turner, former state project manager. “Early and frequent communication is the key to success. Our staff has a wide array of expertise and is fairly creative at problem solving. Use us to make your job easier.”

Baker adds that patience and getting the community involved in the decision making is important.

“Get as many donations as possible, and work with your local and county governments, business leaders and citizens, as they generally are a great resource. This has been a positive experience for our town and a beautiful one for the people,” said Baker.

For more information, email Brent.Cary@ky.gov or call 502-564-6716, ext. 4736.

TOP: *The city of Crab Orchard community park.* Photo by David Jackson. **ABOVE:** *Demolition of the concrete at the scrap yard.* Photo by Brent Cary

Recycling becomes second nature to Heaven Hill employees



Awareness campaign, employee appreciation turn naysayers into responsible stewards

By Mary Jo Harrod
Division of Compliance Assistance

Heaven Hill Distilleries, located outside the Bardstown city limits and owned by the Shapira family, is the largest family-owned and operated producer and marketer of distilled spirits in the nation. Since becoming a KY EXCEL member, it also can boast a successful recycling program that has saved the company \$61,000 annually in landfill costs and generated \$31,000 in revenue.

Last year, the distillery bottled more than 12 million cases of its renowned bourbon, including Elijah Craig, Larcency and Evan Williams.

A plant with this capacity can produce significant amounts of materials that can either go to a landfill or be recycled. As a part of their KY EXCEL membership, Heaven Hill set up a recycling program that required the cooperation of everyone involved and included educating its employees about the importance of recycling and protecting the environment.

“When we started our recycling program in 2011, we tried to find everything that could be recycled and vendors to take the materials,” says Kim Harmon, the environmental compliance manager at the distillery. “We recycle paper labels, bands around pallets, aerosol cans, brown paper packing, blue drums, label backing, cardboard, plastic and glass.”

After each successful quarter year of recycling, employees are given incentives, such as reusable insulated mugs, Heaven Hill t-shirts that say “Greening the Hill” or a catered lunch, to encourage the continued success of the program.

“To implement the recycling project, we spent \$4,000 to \$5,000 on recycling supplies and an additional \$3,000 to \$4,000 per year for proper waste disposal. We are spending \$4,000 to 6,000 every quarter on incentives, but it is worth it,” Harmon says. “We spent \$5,000 on recycling receptacles, but their use has generated larger sums.

“Recycling was a big challenge at first—now it is part of the process,” continues Harmon. “In the beginning, finding support among the employees and management was hard due to resistance to change. We had an introduction to the program, training and an awareness campaign, plus we expressed our appreciation to our employees.”

In addition, Heaven Hill purchased spring-loaded hand trucks to move the drums of recyclables and a hydraulic pallet jack for the empty glass pallets; a recycling vendor provides bulk boxes and baling wire. In just seven months, the plant recycled 280 tons of cardboard, plastic and glass; the facility recycled 614 tons in 2012. Department managers are looking in each of their areas for ways to further reduce waste.

Heaven Hill’s plantwide recycling program has also resulted in a more organized operation, with everything having

Continued to Page 12



TOP LEFT: Cardboard is banded for recycling. **MIDDLE:** An employee appreciation t-shirt. Photos courtesy of Heaven Hill Distilleries
BOTTOM: Entrance sign to Heaven Hill.
Photo by Mary Jo Harrod

\$1 million soil cleanup at Park Hill

Continued from Page 2

“We are going door-to-door to talk with residents about the cleanup and answer questions. We are making every effort to protect, involve and inform the community,” said Hubbard.

The residential cleanup activities are expected to run into early November, as each yard is expected to take two to three days to complete. Depending on the number of properties granted access, the costs for this portion of the cleanup are expected to range from \$1.1 million to \$1.8 million.

At the same time yards are being cleaned up, the Commonwealth is negotiating with potentially responsible parties to have the actual Black Leaf Chemical site cleaned up at the earliest possible date.

Although it now lays vacant, the 29-acre site has been used for industry for most of the last 100 years. Previous owners operated businesses involving coal production, tobacco processing, alkali batteries, bourbon distillation and packaging, wood production, and pesticide manufacturing.

The site is actually named after a nicotine-based insecticide, Black Leaf 40, which was once produced there.

For additional information, contact Tim Hubbard or Sheri Adkins at 502-564-6716. For properties being cleaned up by EPA, contact Art Smith, EPA at 502-582-5161.



A monitor detects air particles to ensure proper air quality during soil excavation.

Photo by Dick Brown

Urban forestry

Continued from Page 2

Peter Barber, KDF’s urban forestry partnership coordinator, and Sean Godbold, KDF’s forester in the north central region, worked with Cody Munday, a geologist with Kentucky Division of Waste Management, to inventory the trees where property owners gave permission. Each tree was cataloged for species, diameter, structural condition and presence of utility conflicts to determine if it could be protected during the soil removal or if it needed to be removed.

“Most of the 145 trees inventoried are in poor condition and at the end of their healthy service life,” said Barber. “Removing trees that are structurally unsound and interfering with overhead power lines creates an opportunity to plant a better tree in a better place on the property.”

Following the completed survey, KDF recommends removing the trees and replacing them with better species in better locations. Smaller growing trees such as redbud, dogwood and sweetbay magnolia are suitable for growing under power lines and near buildings. Large growing trees like sycamore, white oak, black gum and bald cypress are suitable for the backyards in Park Hill. Species were selected based on tolerance to soil disturbance, storm damage, drought and their native characteristics to the region.

Urban trees provide many benefits and services, including lowering cooling costs and energy demands for homeowners, improving air and water quality, and improving property values while creating beautiful areas for all to live, work and play.

A remarkable journey

Continued from Page 5

monitor the long-term population trends in woodland songbird species that are suffering population decline due to habitat loss. Target species include interior forest songbirds such as wood thrushes, Acadian flycatchers and Louisiana waterthrushes.

“Bird banding is a technique used to figure out how these native species are using our natural areas,” continued Weese. “We set up special nets before sunrise, check them every hour, and safely remove and transport captured birds to a banding station where they are fitted with a special numbered band,” he said. Each banded migrant is registered with the USGS Bird Banding Laboratory where they can be tracked if recaptured and their behaviors studied throughout their migration.

“These birds are protected by the federal Migratory Bird Treaty Act, and you have to obtain federal and state permits to purchase these nets,” said Weese. “I’ve studied and banded birds for more than 10 years, and I am always amazed that these tiny creatures can find their way back to the same nesting spots year after year.”

Recently, Kentucky Educational Television received an Emmy for its *Kentucky Life* segment titled “Migratory Songbirds at Red River Gorge,” which explored the state’s songbird diversity. Weese and park naturalist Brian Gasdorf led *Kentucky Life* host Dave Shuffett on a bird banding expedition. Watch the segment at <http://tinyurl.com/KETsongbirds>

“Continued netting and banding in Kentucky will help us learn even more about migratory songbird populations and how they are affected by habitat loss on both ends of their remarkable journey,” said Weese.

The protection of Kentucky’s natural areas promises that migratory songbirds will continue to seek out our beautiful state as home base for their travels. To learn more about how you can help preserve our treasured natural areas, visit <http://heritageland.ky.gov/Pages/default.aspx>

Hinkston Creek Watershed at a Glance

LEFT TO RIGHT: Lajuanda Haight-Maybriar (left) with DOW and Angie Wingfield (right) formerly with the Division of Conservation, flank Bourbon County landowner Wanda Crouch, who installed a water tank on her land to provide livestock an alternative water source to Hinkston Creek. Cattle exclusion fencing prevents livestock from damaging creek banks and contaminating water. Members of the Montgomery Co. Conservation District Board of Supervisors display signs to be erected identifying the Hinkston Creek Watershed. Fenced stream crossings with graded banks and gravel pads allow livestock to cross waterways without straying into the water.

BELOW: Watershed billboard. Photo by John Webb, DOW



“Thank a Farmer!” for watershed improvements

Articles by Allison Fleck, Division of Water
Photographs courtesy of Barry Tinning, Tetra Tech

When you see protected, tree-lined buffers along our creek banks, thank a farmer! So reads a Montgomery County billboard featuring the bucolic image of a meandering stream lined with thick vegetation and billowing trees adjacent to a golden, hay-filled meadow.

The billboard is one of five in the Hinkston Creek Watershed designed to bring attention to the important role farmers are playing in improving water quality in the watershed. It is also part of a larger partnership supported by county conservation districts to implement a watershed plan to promote appropriate management of pastures, cropland and waterways—including cost-share funding for watershed improvement projects, outreach and education.

Hinkston Creek originates in the southern and western portions of Montgomery County and flows through the city of Mt. Sterling. It then proceeds northward through Bourbon County,



where it joins with Stoner Creek to form the South Fork of the Licking River. The river is used as a drinking water source and a recreational resource by communities in Harrison County and other counties, making good water quality a public health concern.

The watershed, which is predominantly agricultural, drains 260 square miles of rolling pastureland in the Outer Bluegrass region northeast of Lexington. Over the years, the Kentucky Division of Water (DOW) had identified several reaches of the

mainstem of the creek and major tributaries as impaired due to the effects of agricultural activities and aging septic systems.

“Hinkston Creek and some of its tributaries had become impaired and significantly degraded by nonpoint pollution from poor livestock grazing practices, removal of streamside vegetation, the dumping of waste along banks, runoff from urbanized areas, sedimentation and other causes,” said Clark Dorman,



manager of the DOW Water Quality Branch. “When the sources of pollution are widespread, so must be the solutions.”

A survey and mapping program undertaken by the Gateway District Health Department as far back as 1998 reinforced DOW’s findings. It revealed widespread erosion along the banks of feeder streams, little riparian cover or buffers along waterways, relatively unrestricted cattle access to sensitive bank areas, confined animal feeding operations adjacent to streams, row cropping on erodible lands and riparian areas along waterways, and poor manure management on farms throughout the watershed.

In 2010, a coalition of county conservation districts, local and state government entities, private landowners and businesses, and other interested people decided to do something about the problems. Armed with a \$484,000 Clean Water Act nonpoint source pollution control (319(h)) grant, issued by DOW and coordinated through the Kentucky Division of Conservation, they went to work.

In an effort to proactively address impairments and improve water quality, the coalition worked with Tetra Tech, an environmental consulting firm, to review existing data, assess water quality and watershed conditions, and develop a plan to address the impairments. Tetra Tech Senior Project Manager Barry Toning, who is also a resident of Montgomery County, was assigned to the project.

“My family and I have lived in the area for 30 years and we love it here. Despite its growth, Mt. Sterling and Montgomery County remain a close community of caring people who are willing to reach out and help one another. This became apparent as the Hinkston Creek project developed.”

Toning, who is a writer with an avid interest in history, used his talents to raise public awareness of the tie between the creek

Continued on Page 11

Healthy Streams and Riparian Zones

The area of plant growth along streams is known as the riparian zone. These strips of vegetation that include trees, bushes and other plants have multiple jobs:

- Maintain cool water temperatures by providing shade.
- Provide habitat and a travel corridor for wildlife.
- Stabilize banks by rooting into soil to deflect the cutting action of waves, ice, boat wakes and stormwater runoff.
- Filter out chemicals and nutrients that run off from neighboring fields, yards and landscapes.
- Filter and stabilize sediment carried from construction sites.
- Supply woody debris to the channel to help maintain channel form and improve complexity of in-stream habitat.

Continued on Page 11



A poor riparian zone. Photo by Kentucky DOW

“Thank a Farmer!”

Continued from Page 10

and local history through a series of 26 weekly columns that appeared in the Mt. Sterling Advocate newspaper.

“I figured that if I could initiate interest in the creek through storytelling, it would help make people aware of the important role of the creek in the life of our area, and increase interest in making environmental improvements.”

Tonning guessed right.

“People would stop me in the street or in the gym to comment on the columns, or to tell me about their great-grandparents, or sometimes to let me know of a correction,” he said. “Getting people involved in making environmental improvements gives them a sense of possession of a project and its goals.”

During the watershed plan development process, five best management practices were identified to address water quality impairments. These include:

1. Stabilize channels with vegetation—ditches, swales, drainage channels and creek banks will erode if they are not stabilized with vegetation such as grasses, shrubs and trees.

2. Control livestock creek access—prevent bacterial contamination of water and damage to creek banks from livestock by installing fencing and providing alternative water sources.

3. Manage pasture grass cover—maintain a healthy stand of pasture grass to support maximum cattle weight gain and avoid bare spots, which result in sediment running off into waterways.

4. Clean up pavement runoff—roads, parking lots, loading docks, material storage areas and vehicle maintenance yards can be sources of pollutants such as fuel, oil, grease, litter, sediment and chemicals. Pavement should be kept clean and spills cleaned up promptly.

5. Control sediment runoff—construction sites and other bare-soil areas can cause muddy runoff and creek contamination. The best approach for controlling erosion and sediment loss is to get to final grade, complete the project and re-seed and mulch as quickly as possible.

Tonning said improvements are

already underway just two years into the project.

“Agriculture producer partners have installed 14,128 feet of fencing to prevent livestock access to waterways plus 5,480 feet of waterline to supply 12 stock watering tanks,” said Toning. “Seven heavy-use feeding areas have been stabilized with the use of geotextile and stone. Signs along roads announcing the watershed as well as signs on bridges that identify Hinkston Creek help raise awareness of the watershed and the need to protect it. In addition, two stream crossings have been installed that allow livestock to cross with minimum stream disturbance through the use of protective ramps, culverts and fencing.”

Tonning had high praise for the involvement of the county conservation districts, which worked directly with farmers on the cost-share funding portion of the project and handled advertising, news releases and the distribution, review and approval of applications.

“The staff at the Bourbon, Montgomery and Nicholas county districts have been directly responsible for the success of this project,” he said. “They really went the extra mile to make things work.”

Of equal importance to these tangible actions, however, has been the less tangible element of an expanding public consciousness, said Toning.

“I believe the education and outreach efforts endorsed and supported by the conservation districts and other partners have begun a dialogue that will help immensely over the long term,” said Toning. “We are really just using nature itself to bring about improvements in our natural surroundings. I’m reminded of a conversation I had with a local farmer who obtained cost-share assistance to install a water tank to lure cattle away from the creek. He said, ‘If cattle have a choice between drinking good, clean city or well water in a tank on top of a hill versus muddy creek water down in the holler, they’ll climb that hill to the tank every time.’”

Watershed partners

- Agricultural producers
- Kentucky Division of Conservation
- Kentucky Division of Water
- Montgomery Co. Conservation District
- Bourbon Co. Conservation District
- Nicholas Co. Conservation District
- UK Agricultural Extension Service
- Natural Resource Conservation Service
- Kentucky Waterways Alliance
- Licking River Watershed Watch
- Montgomery Co. Fiscal Court
- Morehead State University
- City of Mt. Sterling
- Tetra Tech

Healthy streams and riparian zones

Continued from Page 10

- Limit downstream flooding.
- Provide a natural environment for recreation such as fishing, canoeing, hiking and bird watching.

Restoring riparian buffers

Riparian zones can take many forms and can be used in rural, suburban and urban areas alike. To be most effective, they should include native vegetation that requires less maintenance and is better suited to native birds, butterflies and wildlife. The zones should be as wide as possible and as tall as the stream is wide.

Creating a riparian zone does not have to be expensive. Simply ignore your stream bank by creating a no-mow zone. Birds, squirrels and wandering roots from nearby plants will find their way to your stream bank, delivering your future forest in the form of seeds, nuts, berries and roots. You can also choose to help your riparian buffer along by planting new native trees, bushes and grasses.

Recycling becomes second nature to Heaven Hill employees

Continued from Page 7

a specific place, which reduces employee stress and uncertainty. Trash and shrink wrap are no longer being thrown in a multitude of small boxes and overflowing from their containers. Truck traffic to the landfill has been reduced from three times a week to one, and two trailers of recyclables leave the plant each week.

Harmon credits KY EXCEL, Kentucky's free environmental leadership program, with garnering support and ownership for the project. Heaven Hill is one of three distilleries in the program, and it also participates in the state's Sustainable Spirits summits.

Employees are excited about the difference they are making in their workplace and homes. Due to the employees' enthusiasm in bringing recyclables from home, Heaven Hill is setting up a larger building, costing \$30,000, to handle the volume of materials the employees can bring.

"This has been great! Our recycling program has made us become more responsible stewards in Nelson County," says Harmon. "People are excited because some recycle everything and others are just learning, but we are changing people's lives outside the plant."



One of many recycling barrels located throughout the plant.

Photo courtesy of Heaven Hill Distilleries

KY EXCEL Members/Upgrades

KY EXCEL is a voluntary program that recognizes public, corporate and private sector organizations that act to improve Kentucky's diverse and unique environment through environmental leadership. Join KY EXCEL by calling 1-800-926-8111 or visit <http://dca.ky.gov/kyexcel/>.

Advocate

- EcoGro, Fayette County

Master

- Kentucky Utilities Co.—Haefling Generating Station, Fayette County
- Beam Inc.—Bullitt County (upgraded from Partner)

Leader

- Smithfield Packing—Middlesboro, Bell County (upgraded from Partner)

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

become available once regulations are in place. Carbon dioxide capture from existing power plants, while technically feasible, is not only very expensive, it imposes a huge energy penalty on the plant. We have a long way to go to address these issues. With an emissions rate target placed on electric generating units, Kentucky will go from being primarily dependent on coal for its electricity generation to being primarily dependent on natural gas.

Electricity costs will increase, we risk losing some of our major manufacturing industries, and we will be contributing, for all intents and purposes, toward a negligible amount of global carbon dioxide emission reductions. Our burden, in other words, will be significant, but the contribution toward the president's stated goal of reducing emissions from 2005 levels 17 percent by 2020 and 80 percent by 2050, will fall short. There is a better way to

achieve the president's goal—but placing a largely unachievable target for existing coal-fired plants, forcing utilities to close plants and build new natural gas generation, is not in our state's nor the nation's best interest.

I say this because the president has also placed emphasis on rejuvenating the nation's manufacturing economy, which depends on reliable, affordable electricity. Each state and its economy are unique. One way of measuring these differences is through the amount of electricity required to generate a dollar of state gross domestic product. It is intuitive that manufacturing states and those with a substantial industrial component will be higher by this measure. Consumer states without a significant manufacturing base have relatively lower electricity generation profiles and they benefit from energy expenditures in states with a strong manufacturing base.

It's important to keep Kentucky's unique position in mind when discussing these options. It's not always easy to convey the complexities of these issues, how they impact our businesses and citizens, and how options that work in other states might not be as applicable here.

Kentucky is unique, and when we talk about the ramifications of standards on existing plants, we do so because jobs and economic well-being are particularly vulnerable, and not every state is equally vulnerable. Our challenge to address GHG emissions is one we've been struggling with for years. We need to accept our responsibilities, but we also hope to encourage rational discussion on the approach that is taken—one that will not only help us achieve our emission reduction goals, but will do so in an equitable and less costly manner.

Land named for retired board chairman

Wild Rivers Program adds 458 acres to inventory of protected lands



**By Allison Fleck
Division of Water**

The acquisition of 458 acres of mature, high-quality forest in Pulaski County will help protect the exceptional quality and aesthetic character of the Rockcastle River, a portion of which is designated a Kentucky Wild River.

"We've had our eye on this particular property for about 10 years in hopes that it would become available," said Zach Couch, coordinator of the Wild Rivers Program at the Kentucky Division of Water. "The landscape is a woodland of mature trees, mainly red oak and hemlock. Most importantly, however, is the inclusion of 90 acres of frontage on the Rockcastle River."

The Rockcastle River contains a diverse assemblage of fish and mussels including several state and federally listed endangered species. In addition, the Dr. William H. Martin Watershed and Wildlife Conservation Area, named for the first board chairman of the Kentucky Heritage Land Conservation Fund (KHLCHF) Board, contains a vast summer roosting habitat for the Indiana bat and foraging habitat for the gray bat and other bat species. (*Read about Dr. William H. Martin in the adjoining column*).

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

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

The Kentucky Wild Rivers Act of 1972 designated segments of nine rivers, including a portion of Rockcastle River, as Wild Rivers. This designation allows the stream segments to retain many of their natural attributes and it protects them from unwise use and development. Each Wild River is actually

Continued on Page 15



**By Zeb Weese
Heritage Land Conservation Fund**

When the Kentucky Heritage Land Conservation Fund (KHLCHF) Board met for the first time in September 1994, Dr. William H. Martin called the meeting to order as its first board chairman. Nineteen years later, during the July

2013 meeting, Martin passed the gavel to Dr. Richard Kessler, only the second chairman in the board's history.

"I'm very pleased that Governor Beshear appointed Dr. Kessler as my replacement," said Martin. "He will be a most committed and capable chairman who will ensure that natural lands acquired by the fund will be protected and that sound resource management practices are followed."

During those 19 years, Martin has been at the helm of the state's primary funding source for conserving natural areas in Kentucky. Under his leadership, natural habitat on more than 80,000 acres statewide were protected in perpetuity by KHLCHF conservation easements and deed restrictions, from wetlands in the Jackson Purchase to caves along the Green River to old-growth forests on Pine Mountain.

Martin spent decades working on conservation issues in Kentucky before the KHLCHF was founded. A native of Tennessee, he first came to Kentucky to work in the biology department of Eastern Kentucky University (EKU) in 1969, a position he held for more than three decades. While at the university, he was instrumental in the formation of its natural areas program and the development of the long-term ecological monitoring of Lilley Cornett Woods in Letcher County, one of the few old-growth forests left in Kentucky.

In 1992 Martin was appointed commissioner of the Kentucky Department for Natural Resources (DNR), which led to him being named the first KHLCHF board chairman. After leaving DNR in

Continued on Page 15

CENTER: Dr. William H. Martin Watershed and Wildlife Conservation Area.

LEFT: Dr. William H. Martin (left) and Zach Couch hold the land designation sign.

RIGHT: Dr. Richard Kessler (left) receives the gavel from Dr. William H. Martin.

Photos by Joe Dietz

Raising awareness about invasive species

State experts help the KY-EPPC update their exotic pest plants list

By Joyce Bender

Kentucky State Nature Preserves Commission

Mimosa anyone? If you're reaching for your glass, don't. We're talking trees. A mimosa is an ornamental tree found in many yards and along roadsides throughout Kentucky. It is commonly known as a Persian silk (*Albizia julibrissin*) tree because of its silk-like flowers, but is lesser known as an exotic plant that grows quickly and threatens the state's native species and barrens communities. It is listed as a significant threat by the Kentucky Exotic Pest Plant Council (KY-EPPC) due to its invasive characteristics and capacity to invade natural communities.

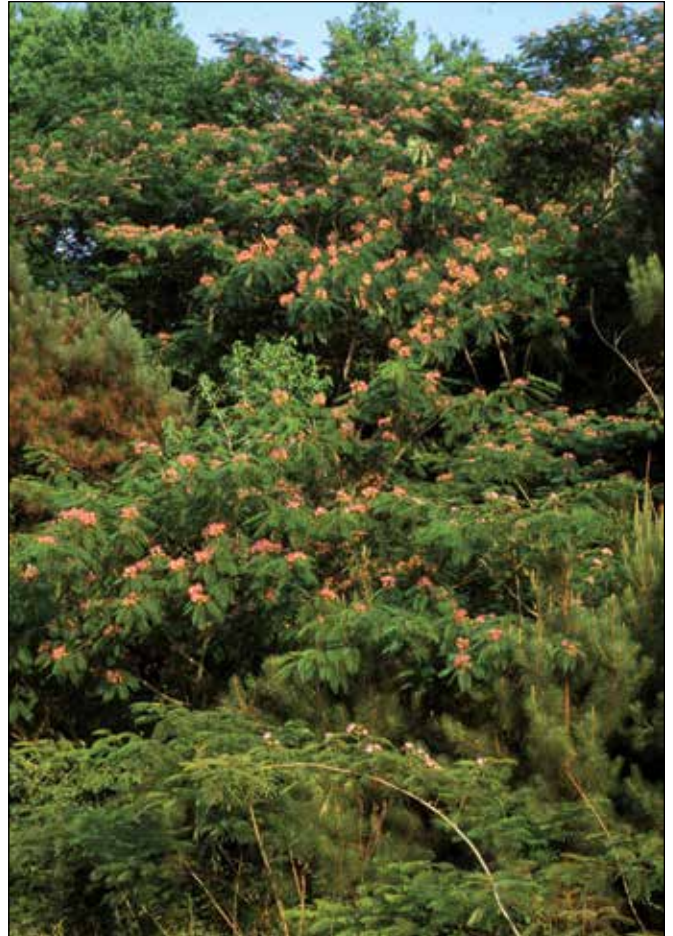
Kentucky State Nature Preserves Commission (KSNPC) staff, along with other leading weed experts, botanists, university professors and natural areas land managers, worked with the council during a year-long review to evaluate and publish a revised list of 180 non-native invasive plants that have a negative impact on Kentucky's landscapes. The revised list is more comprehensive and takes new regional data into consideration, which will serve as a valuable reference for government agencies, universities, land managers, horticulture professionals and private landowners.

"The KY-EPPC list is the most actively used and referenced list of exotic pest plants in the state, so it is good to see the list updated to include invasive plants that have recently become a concern," said Deborah White, one of two botanists and two preserve managers from KSNPC who worked on the list. "Getting all these botanists together to discuss exotic pest plants, including where they have been seen and how they are degrading natural areas, results in a list that educates everyone who participates."

The non-natives are listed by ranking based on their invasive threat—severe, significant, moderate and watch. There are 40 species considered a severe threat, including autumn olive, burning bush and wintercreeper, with 13 species added to this category since the last major review in 2004. These plants are likely to cause environmental harm and increase costs for control or eradication. The watch category lists invasives that have not been observed or well-documented in Kentucky, but are considered a threat in neighboring states. Familiar species like Rose of Sharon and Heavenly bamboo are included and also are often found for sale at local landscape nurseries.

"It's important for property owners to know what's on this list so that they don't add to the problem by planting trees and shrubs that can compete with native species," continued White.

Professionals and citizen scientists may report observations of non-native invasive plants using EddMaps at <http://www.eddmaps.org/southeast/index.html>. Homeowners can help by becoming familiar with what is growing in their yard and choosing native plants that support a higher diversity of pollinators, birds and other wildlife. There are also natural areas and parks throughout the state that need volunteers to help with eradicating invasive plants. The KY-EPPC can help connect people to volunteer opportunities in their area. For more information, email floracliff@aol.com. To view the KY-EPPC's revised list of exotic pest plants, visit <http://www.se-eppc.org/ky/>



TOP: The mimosa is often seen as a landscape tree in yards and along highways in Kentucky and other states.

ABOVE: The pink silk-like flowers that adorn the mimosa make it an attractive species for yards, but it should be avoided due to its invasive nature. Photos by James H. Miller, USDA Forest Service

Land named for retired board chairman

Pulaski Co. land acquisition

Continued from Page 13



The Jack O'Lantern mushroom (*omphalotus olearius*) found on the Wild Rivers property grows clustered on or around deciduous stumps or buried wood, often in large quantities.

Photo by Zach Couch

a linear corridor encompassing up to 2,000 feet of all land on either side of the river.

The act also allows for protection of ecologically important land through fee-simple acquisition using dedicated funds from the KHLCF obtained through the sale of nature license plates and the collection of unmined mineral taxes and environmental fines. The funds may be used to purchase natural areas with rare habitats and endangered species; areas important to migratory birds; areas that perform important natural functions that are subject to alteration or loss; and areas to be preserved in their natural state for public use, outdoor recreation and education.

When property owners are willing, the state may purchase lands within the corridor or within the watershed of the Wild River to further protect the waterway. To date, the Wild Rivers Program has purchased more than 4,000 acres, with two additional tracts totaling 1,100 acres expected to close by the end of 2013. These lands are subject to the same restrictions imposed on the Wild Rivers corridor.

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

Martin retires as chairman

Continued from Page 13

1998 he returned to ECU, but retained his chairmanship by serving as a representative of the Kentucky Academy of Sciences to the KHLCF Board.

Kessler also has served as a representative of the Kentucky Academy of Sciences since July 22, 1996, and exactly 17 years to the day, conducted his first KHLCF board meeting. Since joining the board he has served as chair of the Project Review Committee, which is responsible for assessing all funding applications for land acquisition and management. In addition, Kessler serves as director of environmental science at Campbellsville University and has worked for The Nature Conservancy coordinating their activities along the Green River. A native of Green County with a doctorate in environmental biology, Kessler has a lifetime of experience on the Green River and understands the importance of conserving the forests and wetlands that protect Kentucky's aquatic resources.

"It is both a great honor and a privilege to serve as chair of the Kentucky Heritage Land Conservation Fund," said Kessler. "Taking the reins from Dr. Martin is a daunting task, but I have great confidence that with the support of a very active and accomplished board and a highly motivated staff that the KHLCF will continue to make great gains in the conservation of Kentucky's natural lands."

One of Kessler's first actions as chairman was to officially dedicate the Dr. William H. Martin Watershed and Wildlife Conservation Area, the last property purchased with KHLCF funding under Martin's tenure.

The KHLCF is administrated by the DNR and funded in part by the sale of "Nature's Finest" license plates. The fund has protected and conserved more than 80,000 acres in 63 counties. For more information, visit <http://heritageland.ky.gov> or email Zeb Weese at zeb.weese@ky.gov.

KHLCF to sponsor video contest

Kentucky students will have an opportunity this fall to help raise awareness of the Kentucky Heritage Land Conservation Fund's (KHLCF) "Nature's Finest" license plate program. KHLCF is seeking creative and original videos from high school, college, trade or professional school students in Kentucky that describe what the fund does and its importance to Kentucky.

Since 1993, the KHLCF has granted money to state agencies and local governments to purchase more than 80,000 acres of natural areas from willing sellers. KHLCF's goal is to preserve these areas in their natural state forever, for a number of important reasons, including their importance to migratory birds (read *A remarkable journey: migratory songbirds are seasoned travelers* on Page 5), provide a habitat for rare and endangered species, prevent loss or alteration of ecosystems (read *Land named for retired board chairman; Wild Rivers Program adds 458 acres to inventory of protected lands* on Page 13), or serve as settings for public outdoor recreation and education. A portion of the funds come from the sale of Nature's Finest license plates.

The contest began on Aug. 15 and runs through June 16, 2014. First- and second-place winners will receive cash prizes of \$500 and \$250, respectively.

Rules and detailed information about the video contest is available at <http://heritageland.ky.gov>



New state regulation requires certification for wastewater labs

By Allison Fleck
Division of Water

A new state wastewater laboratory certification program that took effect Sept. 7, 2013, will standardize the procedures used in obtaining, processing and reporting samples and results to help ensure the quality of analytical data used by the Kentucky Division of Water (DOW) for regulatory purposes.

Legislation passed in 2011 requires certification of laboratories that conduct analyses of wastewater at permitted facilities for the purposes of compliance. The wastewater laboratory certification regulation spells out the detailed requirements of the program authorized by KRS 224.10-670.

“Standardization is a vital component in the effort to ensure that a laboratory has the necessary competence, facilities and equipment to perform the required laboratory analytical proce-



dures,” said Frank Hall, coordinator of the Laboratory Certification Section.

The program includes specific standards for training, quality control, field analysis, equipment, supplies, methodology, data management, fees and auditing.

In order to become certified, laboratories submit the application and fee to DOW, which then performs an on-site audit to evaluate the laboratory facility, operation and management. If the laboratory is found acceptable, DOW will issue full certification.

The wastewater laboratory certification regulation provides procedures for laboratories applying for certification, establishes annual fees and provides the appropriate methods and references for evaluating and assuring laboratory competence and data reliability. The certification requirement will affect approximately 300 to 350 private and public laboratories that provide wastewater testing services associated with the Kentucky Pollutant Discharge Elimination System (KPDES) permit program.

As authorized by the federal Clean Water Act, the KPDES permit program controls water pollution by regulating point

sources that discharge pollutants into waters of the U.S. Point sources are discrete conveyances such as pipes or man-made ditches. Some of the types of businesses required to hold the permit are manufacturing operations, car washes, auto salvage yards, wastewater treatment plants, mining operations, petroleum storage facilities and aquaculture operations.

Essentially, all KPDES permits allow discharges, but within acceptable limits set by the U.S. Environmental Protection Agency, said Jory Becker, manager of the DOW Surface Water Permits Branch.

“The KPDES permit limits are designed to protect streams and lakes,” said Becker. “The permits allow businesses to discharge a range of waste pollutants into rivers, streams and lakes in ways that minimize the potential for harm to fish and other aquatic life and to humans who use the water for drinking and recreation.”

The DOW monitors permitted facilities to ensure permit compliance by reviewing discharge monitoring reports; interviewing facility personnel knowledgeable of the facility; inspecting the processes that generate and treat wastewater; sampling wastewater discharges to navigable waterways and other points in the generation or treatment process; and reviewing how samples are collected and analyzed by the laboratory.

Doug Wolfe, director of Compliance and Development for McCoy and McCoy Laboratories Inc., said the certification program will have a beneficial impact on the regulated community, the laboratories and the public. He said the

regulated public can be assured that the data represents the true discharge, while the laboratories will know they are operating by approved standards that reflect their capabilities and training.

Just as importantly, Wolfe said, “the public perception of the regulated community should improve due to the transparency of the analytical process and final discharge monitoring reports as all practices take ownership of their impact on the environment.”

DOW Director Sandy Gruzesky said the impact of the program will go well beyond ensuring permit compliance.

“This wastewater laboratory certification program will help ensure that data submitted for regulation, development, planning, permitting and other regulatory functions will be of acceptable quality,” she said. “This, in turn, will help us provide better protection to the public and the environment.”

Certification Process

- Wastewater laboratory submits an application and fee, applying for only those analysis categories performed by the lab, including “field only.”
- DOW reviews application for documentation and completeness. If deemed acceptable, DOW issues interim certification, pending audit.
- DOW performs on-site audit.
- DOW issues full certification or, if deficiencies are found, provisional certification.
- Provisional certification is replaced by full certification upon receipt of proof of deficiency correction.
- DOW has the authority to revoke certification if deficiencies persist or develop.
- Certification renewal is required every two years, with fees paid annually.
- Fee schedule is tiered depending on categories of analysis and other factors. Fee will average approximately \$3,000.

Laboratories that perform analytical testing on samples associated with wastewater permits will be required to obtain certification.

Photo by McCoy and McCoy



Crumb rubber: a valuable end use for Kentucky's waste tires

By Lisa Evans
Division of Waste Management

From football fields and playgrounds to indoor gymnasiums, the Energy and Environment Cabinet's Crumb Rubber Grant program is saving maintenance costs for school districts, lowering the risk of injury for children on playgrounds, and providing a great recycling opportunity for the many tires found along roadways and in illegal dumps across Kentucky.

Crumb rubber is created from grinding waste tires and can be used for a variety of purposes.

Crumb rubber is clean and metal free and can be ground to different sizes depending on the end use. A coarse grind is used for playground or landscape mulch, and a much finer texture is used for application on natural turf fields. Since the program was established in 2004, the cabinet's Division of Waste Management (DWM) has awarded more than \$6.6 million toward 347 crumb rubber projects including 244 playgrounds, 89 athletic fields and six walking trails. The program has also been used to finance crumb rubber use in two fitness areas, numerous landscaping projects and even two gymnasium floors.



Playgrounds

The Crumb Rubber Grant program has been used to improve many playgrounds throughout the state. A six-inch layer of crumb rubber mulch has been shown to cushion falls from normal playground activity, and with proper maintenance can last for seven years or more. And, children love the feel of crumb rubber under their feet on the playground, often comparing it to walking

TOP LEFT: *Graves County football practice field.*
TOP RIGHT: *Colored crumb rubber landscape mulch at the Center for Courageous Kids in Scottsville.*
ABOVE: *The Williamsburg Convention Center gymnasium floor.* **LEFT:** *Edmonson County's Bee Spring Park.* Photos by DWM

across their bed.

"Anyone who has ever brought their child to a playground with crumb rubber mulch will attest to how much safer and cleaner it makes the play area," said Christopher Thomason, solid waste coordinator for Lincoln and Garrard counties. "Groundskeepers also love it due to the low maintenance of the

mulch and its long lifespan. I believe crumb rubber mulch is the best long-term solution to tire recycling in the United States, and I fully support continuing the highly successful Crumb Rubber Grant program."

Earlier this year, the Center for Courageous Kids in Scottsville, Ky., a camp that serves children and families across the

Continued to Page 20

Brownfield redevelopment brings tourism revenue

Hotel is built on former landfill site



LEFT: *Happy Hollow Landfill property before cleanup in August 2007. ABOVE:* *A 50-room Sleep Inn sits atop the property.*
Photos courtesy of Linebach Funkhouser Inc.

By Mary Jo Harrod
Division of Compliance Assistance

In 1962, the city of Middlesboro granted a household garbage franchise to Roy Shoffner and Sam Mars to operate the Happy Hollow Landfill, a narrow valley of 14 acres. Though the city made garbage pickup mandatory, illegal burning and dumping were constant problems at Happy Hollow. In 1974, the two business partners decided to sell the franchise and garbage trucks back to the city and close the landfill.

Though it was closed and posed no immediate threat to human health and the environment, Happy Hollow remained on the state's list of uncontrolled landfills and was considered a brownfield, a site that is abandoned or underutilized due to perceived or actual contamination. In 2007, Shoffner & Mars LLC, who still retained the property, voluntarily began the appropriate regulatory landfill closure process.

"There was never a threat to the water supply and no methane was ever detected," says Sammy Mars, son of one of the original owners of Happy Hollow. "We contacted Linebach Funkhouser Inc. for assistance in proceeding with the remedia-

tion of the landfill and bringing the site into compliance for closing. We wanted to protect the environment and later chose to develop the site."

Phase I consisted of adding 20 more feet of soil cap, implementing a passive vapor barrier and constructing a landfill cap. A monitoring well extends to the bedrock in the hollow and is checked every six months, though it has been problem-free. Phase II entailed removing 150,000 yards of dirt from a hillside to raise the property level and create flat areas for business. A communal asphalt parking lot sits on a portion of the site.

Being a privately held company, Shoffner & Mars LLC was ineligible for U.S. Environmental Protection Agency brownfield cleanup grants. However, the company recognized the property's potential and spent its own money for the project. The earth-moving cost alone for Phases I and II was \$1.2 million.

"Too many developers run away from brownfields," says Herb Petitjean, Kentucky Brownfield coordinator. "However, Shoffner & Mars are among a growing group of businesspeople who are finding real opportunities in these neglected properties."

The property already had a 60-room Holiday Inn-Express that stayed at capacity and could not be expanded. But at the project's end in 2010, a second hotel, a 50-room Sleep Inn, opened on the site. The property is located on the border of Middlesboro's central business district at the town's main stoplight. Between the two hotels, they now generate 60 percent of tourist tax revenue for the area.

Middlesboro is in a flood-prone area. Before the project, the hilly land was valued at \$10,000 per acre. After moving dirt to create level areas higher than the flood zone, the land's value is \$200,000 per acre.

"There were project challenges, such as with the leachate collection system, which had to be re-engineered," says Charles Leachman, senior geologist from Linebach Funkhouser. "The state wanted us to use a specific type of stone, which was difficult to find, to set around lines to improve drainage. Also, we encountered waste further down the hill than we anticipated and had to be careful to keep it from rolling down the hill."

In redevelopment cases such as this,

Continued on Page 20

Award

Pelles receive 2013 Outstanding Forest Steward Award

By Jennifer Turner
Division of Forestry

Harry and Karen Pelle of Taylor County were recently honored as 2013 Outstanding Forest Stewards at the annual meeting of the Kentucky Association of Conservation Districts. The Pelles were selected first out of five regional winners for their long-term commitment to the care and protection of their 1,300 acres of woodlands. All nominations are judged by the Kentucky Division of Forestry (KDF), Kentucky Department of Fish and Wildlife Resources (KDFWR) and U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS).



TOP: *The Bradfordsville Fire Department testing their pumps in the Pelle's pond.* **ABOVE LEFT:** *A Boy Scout campout.* **ABOVE RIGHT:** *Three generations of Pelles who live and work the farm.* Photos by Harry Pelle

The Pelles have actively managed their forest since acquiring it in 1982. In 2004, they enrolled in KDF's Forest Stewardship Program, which offers free technical advice to landowners, and were later certified as a Kentucky Forest Steward. When the Pelles bought their property, they wanted to preserve a large section of a healthy and diverse forest that would continue to provide clean air, water, recreation, wildlife habitat and a healthy ecosystem for future generations.

"Education is also a prime objective along with family," said Karen Pelle.

The Pelle farm is home to three

generations where the family gathers most weekends at the outdoor pavilion they built and participates in a large fall festival that features hay rides, scavenger hunts and walks in the woods. Their son-in-law, a former Army ranger, lives on the farm and owns a company that teaches leadership, teamwork and communication skills based on Army ranger techniques. He uses the farm and woods as a training ground where clients spend days honing their skills.

The farm also serves as a resource for many members in the community. Boy Scouts hold weekend camps for rifle range

and shotgun shooting. Invited hunters are present for much of the fall and winter. The local fire department uses one of the seven ponds to "pump test" and certify the pumps on their fire trucks. Their daughter's physical therapy business offers opportunities for individuals with developmental disabilities to safely explore and learn through interaction with nature. Their property even served as a training area for rescue dogs to find people lost in the woods.

When asked what he would like to tell

Continued on next page

Crumb rubber: a valuable end use for Kentucky's waste tires *Continued from Page 17*

country who face a variety of medical challenges, used a Crumb Rubber Grant to install colored landscape mulch around trees and shrubs.

In addition to playgrounds, the grant program has also been used to install two new gymnasium floors—one at Williamsburg Convention Center and the other at the Christian Academy of Carrollton. Rubberized gymnasium floors use crumb rubber in the manufacture of a shock-absorbing base layer that is safe and visually appealing.

Athletic Fields

There are a number of advantages to applying crumb rubber to an athletic field. It lowers impact absorption that increases turf life, possibly lowers injury risk, and increases heat retention that leads to earlier and later turf-growing seasons. Crumb rubber allows schools to get more use from their playing fields by increasing the number of events a typical grass field can handle from about 60 per year to as many as 100 and can result in significant savings in maintenance costs. Only three-fourths of an inch of crumb rubber improves turf durability. However, it is not a replacement for normal turf maintenance, and turf should be healthy and well established before applying the product.

As one of the first funding requests in 2004, Graves County High School applied crumb rubber to its football practice field and documented positive results that lasted through four years of heavy use, including one summer of drought conditions. In Ohio County, crumb rubber was applied to the high school football field in 2005, yielding dramatic improvements in turf health and playing conditions that continue to this day.

The Future

The Crumb Rubber Grant program is financed by the Waste Tire Trust Fund, which is generated by the \$1 remediation fee on all retail purchases of new tires in Kentucky. The fee is authorized through the General Assembly and must be periodically reauthorized for DWM's waste tire program to continue. The program averages around \$2 million in grant requests each year, but is not able to fund all requests.

"The Crumb Rubber Grant program has been very successful," says Gary Logsdon, DWM's Recycling and Local Assistance Branch manager. "The division hopes this program can continue to provide a beneficial end use for waste tires, and keep them out of landfills and roadside dumps."

For more information on Kentucky's Crumb Rubber Grant program, email Lisa.Evans@ky.gov, call 502-564-6716 or visit <http://waste.ky.gov/RLA/grants>.

Pelles receive 2013 Outstanding Forest Steward Award

Continued from previous page

other forest owners, Harry Pelle said, "This is not the time to take our eyes off of the forest. There are many health issues attacking our forests, not least of all fragmentation. Once the land is separated, it cannot be put back together."

Over the years, the Pelles have implemented numerous forest management practices, including planting hybrid chestnut trees and completing more than 300 acres of timber stand improvement activities. They also maintain warm season grasses and small food plots for wildlife.

The Pelles stay informed about forest management through their KDF forester and KDFWR biologist, and they also are members of the National Woodland Owners Association, the Kentucky Woodland Owners Association, American Chestnut Foundation, Quality Deer Management Association and Kentucky Certified Master Logger.

To learn more about managing your woodlands, contact your local Division of Forestry or Department of Fish and Wildlife Resources or call the Kentucky Division of Forestry main office at 1-800-866-0555.

Brownfield redevelopment brings tourism revenue *Continued from Page 18*

Leachman recommends bringing a good conceptual project plan to the regulatory agency and asking for advice in case something has been overlooked. Working proactively in this manner makes a project go more smoothly and often prevents delays in the redevelopment process.

Middlesboro is an economic hub for the Tri-State region of northeast Tennessee, southwestern Virginia and eastern Kentucky. The new hotel and parking lot fill a need for the area, which is near the Cumberland Gap Tunnel. With a shortage of hotel rooms before the Sleep Inn was built, the community's response has

been positive.

"For Middlesboro, this project has the wow factor," says Mars. "The landfill is gone, and a new hotel is on-site. The community has pride in the results of the project, which is a prime example of the state working with private industry."

Though no chemicals or hazardous wastes were ever known to have been accepted at the property, Shoffner & Mars went beyond what was required by law to protect the environment. The community has benefited from the revitalization of the area and creation of jobs.



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Seedling nurseries: growing trees for healthy and productive forests



When you plant and nurture black walnut, you are making an investment in the future. This tree is valuable not only for its use in wood products, but it provides important food for wildlife, while being a beautiful tree that protects soil and water resources.

Black walnut is known to exude from its roots an allelopathic chemical called Juglone, which is highly toxic to other plants; therefore,

black walnuts grow well in plantations but not in a landscape grouping with other species. They make an excellent pasture tree because they provide shade, but grasses will still grow well around them. The rich, brown color of the wood makes it a favorite for gun stocks, furniture and veneers.

Black walnut seedlings are available from late fall to early spring from the Division of Forestry's nurseries. Orders are shipped at your request for planting projects during the dormant

period throughout the winter. To obtain an order form, visit <http://forestry.ky.gov/statenurseriesandtreeseedlings/Pages/default.aspx> or call the Division of Forestry at 1-800-866-0555.

*Just the Facts: Black walnut (*Juglans nigra*)*

- **Growth:** The black walnut is a large deciduous tree attaining heights of 50 feet to 90 feet. This valuable forest tree only grows well on rich bottomlands, in moist, fertile coves and on lower slopes throughout the state. The bark is thick, dark brown to black and is divided by deep fissures into rounded ridges. The leaves are alternate, pinnately compound, 12 to 24 inches long, with 15 to 23 sharply oval, finely toothed, long-pointed leaflets up to 3 1/2 inches long. Leaves turn a bright, clear yellow in autumn.
- **Range:** It grows mostly in riparian zones from southern Ontario, west to southeast South Dakota, south to Georgia, northern Florida and southwest to central Texas.
- **Wildlife Uses:** Squirrels eat walnuts when they are green or bury them for future consumption. Deer browse the buds; mice and rabbits nibble young tree stems. Eastern screech owls often roost in black walnut.
- **Tree Trivia:** Kentucky's state champion black walnut (at left) is located in Green County, measures 118 feet tall, and has a circumference of 205 inches. The black walnut nutmeats are used in food, while the hard outer shell is used commercially in abrasive cleaning, cosmetics and oil well drilling and water filtration.