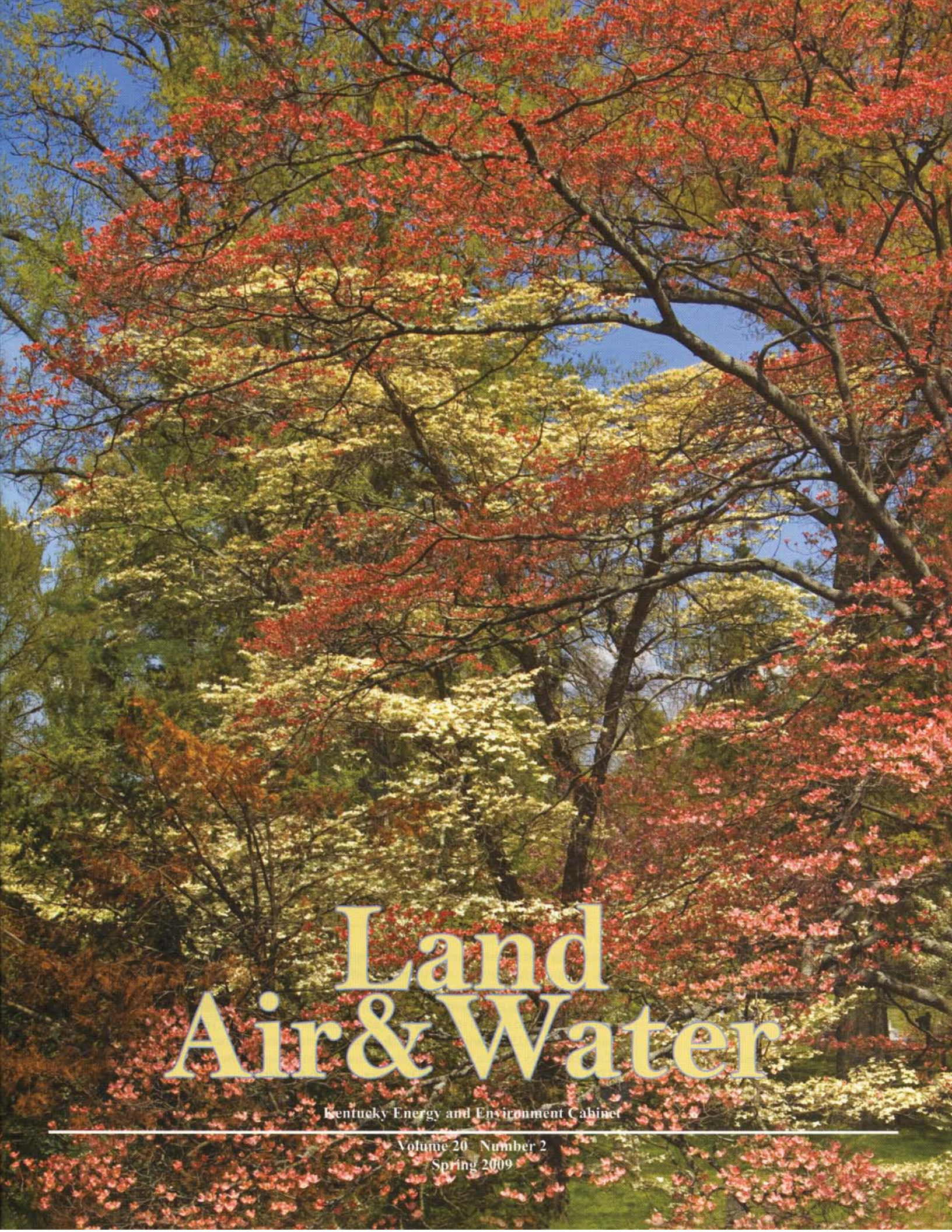

Land Air & Water

Kentucky Energy and Environment Cabinet

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Spring 2009

Land Air&Water

since 1988

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KY EXCEL members display amazing project results

By Mary Jo Harrod
Division of Compliance Assistance

Kentuckians should be proud. The Kentucky Excellence in Environmental Leadership program, known as KY EXCEL, reported exciting project results at the end of December 2008.

In the three years that KY EXCEL has been in existence, members have invested $65,981,425, spent 418,162 hours and utilized 11,086 participants to achieve amazing numbers for their efforts.

KY EXCEL members have:

- Recycled 21,258,738 pounds of scrap metal, which equals the weight of 7,086 cars.
- Recycled 2,743,473 pounds of plastic, equaling nearly 50 million 20-ounce bottles.
- Recycled the equivalent of 26,281,617 aluminum cans.
- Saved enough electricity to power 245 homes for one year.
- Reduced enough natural gas usage to supply all residential users in Kentucky for 10 months.
- Prevented the amount of carbon dioxide that 190 cars would produce in one year.
- Replaced gasoline with 1,022,403 gallons of ethanol, which is enough fuel to drive around the Earth 919 times.

"It is exciting to see the positive impacts that a group of dedicated businesses, organizations and individuals can achieve when they place a priority on the environment and the health of our communities," said Aaron Keatley, director of the Division of Compliance Assistance, which is part of the Department for Environmental Protection. "We congratulate our members for their environmental leadership in making Kentucky a healthier, cleaner place to live and work."

Since its inception in 2006, 181 companies, organizations and individuals have joined KY EXCEL. These members have completed 324 voluntary environmental projects and are currently working on 443 other projects throughout the state. To view the entire list of project results and a list of KY EXCEL members, visit www.dca.ky.gov/KYEXCEL.

While diverse in nature, every member project completed reaches beyond Kentucky's environmental requirements. KY EXCEL requires its members to annually report on the results achieved by implementing their voluntary projects.

KY EXCEL is a voluntary program open to any individual, organization, community or business that wishes to improve and protect Kentucky's environment. To learn more, visit www.KYEXCEL.ky.gov or call the Division of Compliance Assistance toll free at 800-926-8111.

Visit Land, Air & Water online at http://www.eec.ky.gov

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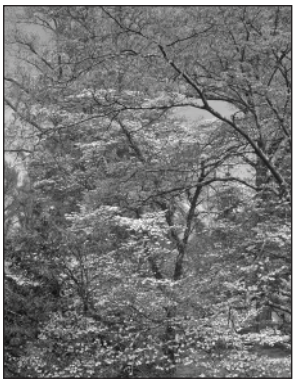

Our Cover

Dogwoods (*Cornus florida*) provide a flourish of color and beauty to the Frankfort Cemetery. Photograph by Merle Wasson Images of Paris, Ky.

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Sourwood

By Paul Rothman, Department for Natural Resources, in collaboration with Dr. Tammy Horn

An experiment in apiforestation

TOP: ***This bee garden is located on James River Coal mine site near the community of Hazard in Perry County.***
ABOVE: ***Dr. Tammy Horn (right) stands with Elaine Holcombe at a bee workshop on the James River Coal mine site.***
Photos by Paul Rothman

Bees have existed for millions of years and thrived in the eastern Kentucky mountain region until they were nearly demolished by mites in the 1980s. Dr. Tammy Horn, who has studied bees for more than a decade, is bringing bee colonies back to Appalachia.

Dr. Horn first contacted the Department for Natural Resources (DNR) several years ago to find out what types of tree species coal companies were planting on surface mines, and more importantly if they were "pollinator-friendly" trees. Historically black locust, and more recently, various Appalachian hardwood species (such as tulip poplars, white oak, red oak, white ash and red maple) are being planted on surface mined lands as a result of the Energy and Environment Cabinet's Kentucky Reforestation Initiative, which began in 1995.

Dr. Horn, who had believed that trees simply would not grow well on mine sites, was pleasantly surprised after visiting a successful reforestation research area that was being conducted by the University of Kentucky on surface mines. After that, she began working with a number of coal companies in an effort to include bee-loving tree species like sourwoods in their reclamation activities.

"Her work is becoming very popular with members of the coal industry and the regulatory community, and she has established a number of bee yards on various mine sites throughout the Kentucky coalfields," said Carl Campbell, commissioner of the DNR.

Dr. Horn has even coined a new term—*Apiforestation*—which is the planting of pollinator-friendly flowers and trees on surface mine sites.

"In forestry circles, sourwoods are not very highly prized because they have very little timber value," said Dr. Horn. "But beekeepers know sourwood for one of the finest honeys the U.S. produces, so there's only one place you can get it."

Sourwood also blooms in the summer and early fall when little else does.

Before Dr. Horn could effectively communicate with the mining industry, she had to familiarize herself with federal and state coal mining laws. In 1977, the federal government passed the Primacy Act where coal companies in the United States are required to reclaim mined lands to "approximate original contour," or AOC, in an effort to restore the topography

Continued on Page 3

Managing drought

New plan provides coordinated response, mitigation

By Allison Fleck
Division of Water

TOP: ***Rain deficits of 15-20 inches occurred across the state during 2007. Near Harrodsburg, cracks measured 10 inches deep.*** Photo by Jordan Wirth, National Weather Service.
MIDDLE: ***On June 16, 2007, Barren River Lake measured 7.5 feet below summer pool.*** Photo by Stuart Foster, state climatologist for Kentucky

Kentucky is a water-rich state with an average annual rainfall of 45 to 50 inches and abundant groundwater and surface water resources. Drought, however, is also a reality in Kentucky. Extended periods of dry weather ranging from a single season to multiple years diminish water supplies.

The drought of 2007 underscored the need to devise a strategy of proactive drought planning to reduce drought risk in Kentucky and manage available water supplies. In recognition of this need, the Kentucky General Assembly last year directed the Energy and Environment Cabinet to develop a comprehensive drought mitigation and response strategy that coordinates the actions of the commonwealth in preparing for and responding to drought.

"Information is the key to managing an emerging drought situation," said Bill Caldwell with the Division of Water, who coordinated development of the drought plan for the cabinet in association with the Kentucky Drought Mitigation Advisory Council. "By establishing a chain of command and order of operations, the Kentucky Drought Mitigation and Response Plan will help guide local, state and federal activities from early detection through emergency response. It also takes a proactive approach to drought planning to anticipate needs during future droughts."

Continued on Page 4

Drought declarations

Officials at the Kentucky Division of Water (DOW) study rainfall amounts, reservoir levels, streamflow, the Palmer Drought Index and the Drought Monitor when determining drought status. Here are terms Kentuckians should know:

Water shortage watch is issued when drought conditions have the potential to threaten the normal availability of drinking water supply sources.

Water shortage alerts citizens in the affected area that the availability of water has reached a critically low level and that a shortage of potable water may result. Citizens should reduce water use and make every effort to participate fully in all water shortage response actions.

Water shortage emergency is declared when water shortages endanger the health and safety of the public, allowing the government to restrict, redirect or stop water usage in the affected areas to preserve essential supplies of water.

LOWER LEFT: Withering corn fields in Maysville during the 2007 drought. Photo courtesy of the Maysville Ledger Independent

Bee workshop participants get a close-up look at the hives located on the James River Coal mine near Hazard. Photo by Paul Rothman

Sourwood: an experiment in apiforestation

Continued from Page 1

that originally existed. Because this standard can be difficult to achieve, some coal companies attempt to develop commercial ventures thus giving them the ability to create a more gentle terrain.

While successful recreation centers, shopping centers and residential communities have been built on former surface mine sites, sometimes these sites are located in isolated areas and are not commercially viable. With the help of the Kentucky Reforestation Initiative and the University of Kentucky, coal companies have the ability to use reforestation techniques that result in forests with long-term commercial value.

"While the department fully appreciates a property owner's right to pick the post-mining land use they desire, DNR promotes reforestation as the land use of choice," said Campbell. "Dr. Horn's work complements our reforestation initiative very nicely."

Today, because of the work of Dr. Horn and the coal companies, sourwood trees are at the center of a new reclamation project in eastern Kentucky.

"Through our relationship with Dr. Horn it became very obvious that there was opportunity for a commercial beekeeping industry if coal companies were to include bee-friendly trees such as sourwoods and basswoods," said Campbell.

During reclamation efforts to re-establish the diversity of Appalachian forests, coal companies such as International Coal Group, LLC Hazard and James River Coal agreed to plant sourwoods and other bee-friendly plants in an effort to help establish the commercial honey bee industry on their mine sites.

In 2007 Dr. Horn, assisted by Tom Webster and Mark Lee at Kentucky State University and Sean Clark at Berea College, placed hives on a research plot located on the Big Elk Mine in Breathitt County. Within weeks she had bees on Big Elk Mine and the University of Kentucky's Robinson Forest. Consequently, bees at the Big Elk Mine gathered more pollen in less time than the other bees.

These efforts require more than tree planting and coal companies. It also requires the involvement of beekeepers like Edwin and Elaine Holcombe from Shelbyville, Tenn. The Holcombes have worked with and provided funding to Dr. Horn in her coal mine bee research projects. Eastern Kentucky Environmental Research Institute, now in its fourth year, is using the Holcombe's gifts of money and bees to further research the benefits of proper reforestation and water quality. If more trees are planted, then water quality improves.

From these endeavors came the Lost Mountain Honey Project established in 2008, which subsequently evolved into the Coal County Beeworks cooperative.

To date, the relationship between Dr. Horn and the coal industry has resulted in:

- Thirty beehives at International Coal Group and 10 hives on James River Coal.
- Approximately 4,000 sourwood trees have been planted.
- Numerous workshops have been held for science teachers, beginner bee keepers, instructions on hive building and presentations on the Appalachian Regional Reforestation Initiative.
- Radio and TV interviews and one film shoot.

"In order for the colonial status of Appalachia to change, the unique mesophytic forests that existed prior to development, logging and mining needs to be re-established so that folks can become beekeepers, honey producers, queen rearers and scientists, as promoted by the Coal Country Beeworks cooperative," said Dr. Horn.

The "apiforestation initiative" supplements surface mining reclamation by promoting other industries in addition to the timber industry. Focusing on sourwoods as a marketing ploy means that Appalachia can compete in the honey market without having to compete with the clover fields in the Dakotas, or the citrus fields in Florida and California, or the tupelo swamps in Florida and Mississippi.

Turns out that sourwood is not really sour at all, but rather a pretty sweet deal for all involved. Sourwood accommodates the Energy and Environment Cabinet's ongoing reforestation initiative to plant more Appalachian tree species on surface mined lands during reclamation, helps the industry meet their reclamation requirements and satisfies a unique niche that will provide long-term benefits to the environment and the community.

See the ad on Page 4 announcing the Appalachian Regional Reforestation Initiative (ARRI) conference in August 2009. ARRI advocates using a technique known as the Forestry Reclamation Approach to plant trees on reclaimed coal mined lands.

Managing drought

Continued from Page 2

The state drought plan has three primary objectives:

1. Establish a consistent basis for evaluating the severity of drought situations (drought monitoring).

2. Create a state-level organizational structure (Kentucky Drought Mitigation Team) that facilitates coordination of state and federal agencies in drought monitoring, response and mitigation activities.

3. Promote a long-term strategy to evaluate the state's drought vulnerabilities and identify actions that will reduce the impacts from future droughts (drought mitigation).

The drought plan achieves a consistent drought evaluation system through specific explanation of drought monitoring indicators and drought level designation. Caldwell said the definitions will "help put everyone on the same page" if all agencies understand the differences, for example, between drought levels I, II and III or the difference between a water advisory and water shortage warning.

The drought planning framework organizes the state into 15 drought management regions, which correspond to the 15 area development districts (ADDs). ADDs provide an existing systematic linkage between local leadership, the governor's office, state and federal agencies and private organizations. This network will be a critical communication vehicle in times of drought crisis and management.

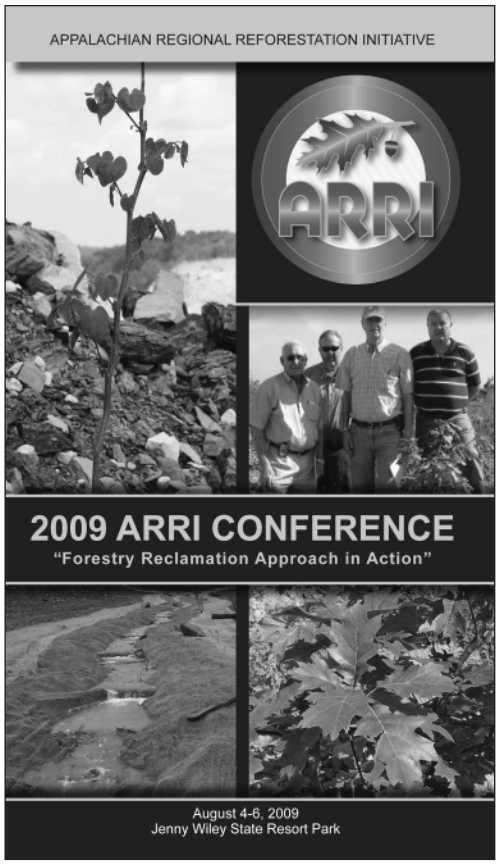
The drought plan places heavy emphasis on drought mitigation. A coordinated drought preparedness program can reduce drought risk to individuals, communities and the environment while fostering a change from crisis management to crisis prevention. Drought mitigation efforts will:

- Identify drought vulnerabilities of public water systems related to raw water supply, customer demand, power production and agricultural needs.
- Identify new sources of water supply.
- Provide the public with basic information on water sources, conservation and drought status.

Caldwell said the involvement of local officials in drought planning and mitigation is essential.

"Local officials and residents are the eyes and the ears of any environmental program," said Caldwell. "With each drought experience, we learn more about how to match needs with resources. Planning for drought always comes back to information and communication. The more we know and the earlier we know it, the better prepared we will be to manage the current drought event and prepare for the next one."

A spectacular dust whirl over a field near Glendale, Ky., on Sept. 20, 2007. The whirlwind formed on a hot sunny day over a field that had just been burned. Photo courtesy of Steven Townsend, Code 3 Images Photography



Mark your calendars to attend the 2009 Appalachian Regional Reforestation Intiative (ARRI) conference held at Jenny Wiley State Resort Park on Aug. 4-6.

ARRI is a coalition of groups, including citizens, the coal industry and government officials dedicated to restoring forests on coal mined lands in the eastern United States.

Registration for the three-day conference is $125, which includes conference materials, transportation, breakfasts, and some lunches and dinners. Student registrations are discounted to $50.

Online registration can be completed at http://arri.osmre.gov/

Cleaner air for Kentucky's children

Clean school bus programs expand throughout the commonwealth

By Elizabeth Robb Schmitz
Division for Air Quality

Virgil Miller, Campbell County School District head mechanic, completes the installation of a diesel particulate filter in 2006. Photo by the Campbell County School District

See box for additional information.

In Kentucky, 9,883 school buses carry 447,000 students to and from school each day, driving 102 million miles and burning 13 million gallons of diesel fuel.

This spring, six school districts from around the state are getting on board with clean school bus programs. While school buses are the safest way to get students to and from school, the Division for Air Quality (DAQ) is working to ensure that school buses are also the cleanest way to transport students.

The DAQ is pleased to announce that Bell, Boone, Fayette, Franklin and Jefferson counties, as well as Paducah Independent school districts will be awarded a total of $196,880 in funds to retrofit school buses with pollution reduction equipment and purchase filter cleaning devices. The Clean School Bus Program, as implemented by each district, will reduce pollution coming from school buses through a combination of idle reduction policies and bus retrofits.

Ultimately, student absenteeism rates are reduced due to the reduction of asthma and allergy triggers produced by diesel fumes.

John Lyons, director of the Division for Air Quality, is thrilled to see more schools taking the initiative to reduce idling time and retrofit their fleets.

"These school districts are taking the lead in protecting children's health," he said. "They are setting the standard for other school districts around the state to follow. Diesel fumes are linked to increased rates of asthma and allergies, especially in children. The links to diesel fumes and children's health cannot be ignored any longer. I commend these districts for their active role in improving children's health across the commonwealth."

In addition to the funds mentioned above, DAQ will be administering an additional minimum of $1.7 million in funding for clean school bus programs through the American Recovery and Reinvestment Act (ARRA) of 2009, as part of President Obama's economic stimulus package to provide much needed dollars for health and public safety. As of April, 10 school districts in Kentucky have been funded to retrofit their school bus fleets.

"I strongly encourage our school districts to apply for these funds," stated Roy Prince, program manager for Pupil Transportation Services in the Kentucky Department of Education. "Because these funds do not require a matching contribution, they will not be a burden to limited education funds. In addition, the idle reduction policies encouraged by the program save school districts money."

For every hour of idle time, school buses burn one gallon of fuel. According to EPA's idle reduction calculator, a district with

Continued to Page 20

Kentucky school districts that participate in clean school bus programs

In 2005, Kenton County School District became the first Kentucky district to retrofit their school buses with funds provided by a Toyota SEP (Supplemental Environmental Project).

In 2006-2007, Campbell, Bourbon and Montgomery county school districts received a combined $512,000 in funding from EPA's Clean School Bus USA program.

These districts piloted idle reduction and retrofit projects to help lower emissions from their diesel fleets and to provide the cleanest possible transportation for school children.

What are people saying?

"One of the best workshops that I have been to in years. An easy way and fast way for a district to save money." Chad Willis, Washington County Board of Education.

"Very informative, and we are ready to begin our plan of action." Jason Coguar, Rockcastle County Schools.

"Excellent! Nice job with lecture/break-out and hands-on discussion." Sheila A. Setser, Scott County.

"One amazing thing about the workshop and the follow-up is that it brings together students and superintendents, facilities and faculty, side by side to reduce energy consumption. Saving energy not only reduces school expenses, it also protects the environment." Pam Proctor, NEED Project.

Workshops provide tools for managing energy in Kentucky schools

By Lee Colten
Department for Energy Development and Independence

The rising cost of energy and increases in energy consumption continues to challenge school district budgets across the commonwealth. According to the Kentucky Department for Energy Development and Independence (KDEDI), "Kentucky's K-12 public schools spent 108 percent more on energy during the 2007-2008 school year than in 2000-2001. Much of this increase resulted from higher energy prices and increased facility use."

In response, KDEDI funded two energy management workshops in February for K-12 schools, with two more tentatively planned for this fall.

"Energy costs are ever increasing, and energy management programs can provide real solutions and savings," said John Davies, acting director of the Division of Energy Efficiency and Conservation.

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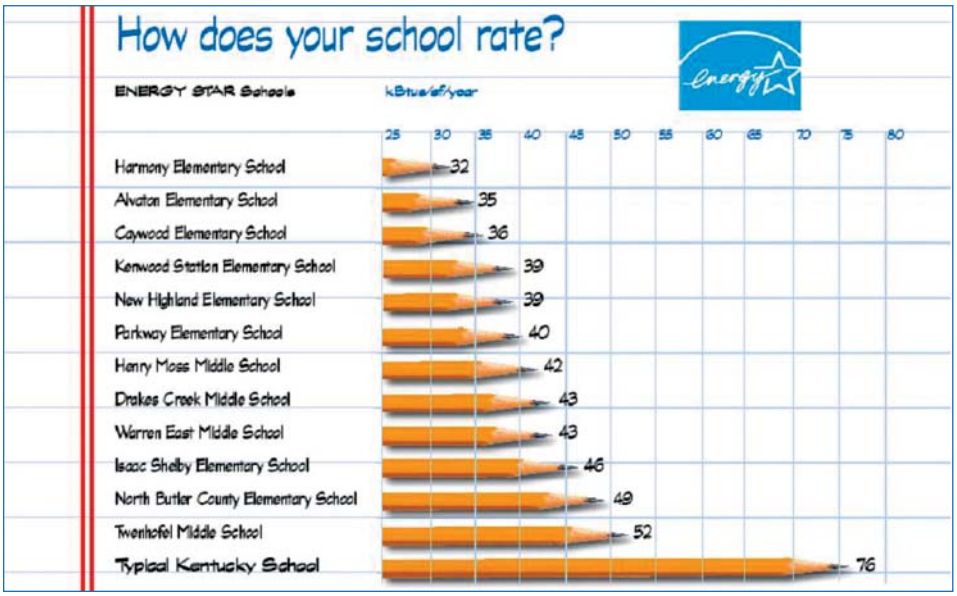


TOP: ***Energy management workshops include presentations and hands-on activities to help schools save on energy expenses.***
Photo by KEEPS

LEFT: ***Just as we compare car efficiency as miles per gallon, buildings can be compared by how much energy is used per square foot per year. The graph illustrates that a typical Kentucky school consumes 76,000 Btu/sq ft/year while ENERGY STAR schools consume as low as 32,000 Btu/sq ft/year. Some schools currently under construction are designed to use less than 20,000 Btu/sq ft/year.***
Graph provided by CMTA Engineering Inc.

Workshops provide tools for managing energy in Kentucky schools *Continued from Page 6*

"These savings can have both a positive environmental and fiscal impact on Kentucky's schools."

The workshops also assist schools in meeting a requirement of Kentucky House Bill 2 from the 2008 Legislative Session, which stipulates that each board of education enroll in the Kentucky Energy Efficiency Program for Schools (KEEPS) on or before Jan. 1, 2010.

These one-day workshops provide a step-by-step systems approach for creating both district and school-level energy management programs. Attendees receive an overview of energy management and learn about tools and curriculum to help develop an interdisciplinary team. Separate training tracks—one for administration, operations and facilities staff; the other for curriculum specialists and teachers—target the technical and educational aspects of developing a successful energy management program.

The workshops are distinctive in that they require staff with different roles within a school district to work towards a common goal. Experience has shown that energy management works best with a team approach. Kentucky educators must address energy because it is tested in grades 4, 7 and 11; administrators must address tight budgets because of rising energy costs.

A total of 267 individuals from 72 school districts attended the February workshops.

"Whether it is curriculum or technical strategies, the workshop gives tools to both teachers and facility staff to help them meet their specific energy goals as well as the goals of the district as a whole," says Karen Reagor, state director of the Kentucky NEED (National Energy Education Development) Project.

The workshops are facilitated by the Kentucky NEED Project in partnership with the Kentucky Pollution Prevention Center's Kentucky Energy Efficiency Program for Schools, the Kentucky School Plant Managers Association and Kentucky Green and Healthy Schools.

Saving energy, saving money

How much are Kentucky schools saving with energy management and efficiency measures?

◊ Bullitt County School District avoided more than $246,000 during 2007-2008 school year.

◊ Kenton County School District avoided about $1 million in energy costs since their program began in 2005.

Each school is saving enough to cover the costs of about five teachers' salaries per year. As energy costs rise, costs avoided increase each year.

To learn more, visit these Web sites:

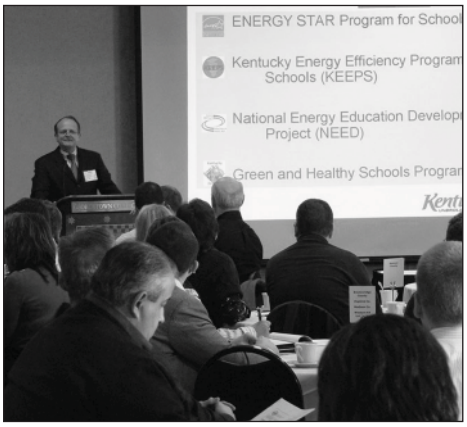
• Kentucky Energy Efficiency for Public Schools (KEEPS): louisville.edu/kppc/keeps

• National Energy Education Development (NEED) Project: www.need.org/

• Green and Healthy Schools: www.greenschools.ky.gov/

• ENERGY STAR buildings: www.energystar.gov

For more information on upcoming workshops contact Pam Proctor with the NEED Project at 859-578-0312 or pproctor@need.org.



John Davies, acting director of the Kentucky Division of Energy Efficiency and Conservation, speaks to a group of workshop participants on the importance of energy efficiency in Kentucky schools. Photo by DEDI

ENERGY STAR Schools

ENERGY STAR is a government-backed program helping to protect the environment through superior energy efficiency. Its focus is to improve building energy efficiency using benchmarks to certify reduction in energy use. Buildings are rated and validated by a third party.

There are more than 6,000 buildings certified nationally and 46 ENERGY STAR-certified buildings in Kentucky. In working with school districts and the Kentucky Department of Education, Kentucky now has 18 high-performance ENERGY STAR schools.

ENERGY STAR certifies qualifying schools with an energy use index. You can think of it as a fuel efficiency rating for buildings – only instead of miles per gallon buildings are rated by energy use per square foot. The lower the energy use per square foot the better.

Kentucky's average school index is around 76 kbtu per square foot, so you can see that ENERGY STAR schools perform much better (see chart on Page 6). ENERGY STAR schools can reduce their average energy costs between $35,000-45,000 per year. ENERGY STAR includes both new and existing schools.

Battling the Hemlock woolly adelgid

Kentucky State Nature Preserves Commission steps up defense against forest pest

By Joyce Bender
Kentucky State Nature Preserves Commission

The Kentucky State Nature Preserves Commission (KSNPC) began chemically treating hemlock trees in 2008 in an effort to combat the spreading threat from the Hemlock woolly adelgid in southeastern Kentucky. The adelgid attaches to the base of needles on the hemlock tree and feeds on the plant's sap, which over time weakens and eventually kills the tree.

The small aphid-like insect has been found in Blanton Forest as well as all other state nature preserves in Bell, Letcher and Harlan counties.

Early attempts to control the insect included efforts by the University of Kentucky Entomology Department, which provided predator beetles to several state agencies and assisted the Pine Mountain Settlement School with beetle releases and chemical treatments.

However, the severity of the infestation has now prompted all state government landowning agencies and Cumberland Gap National Park to use chemical injections, which are the most effective means of treatment available.

The chemical application involves injecting the pesticide imidacloprid into the soil around the infected trees. The pesticide is taken into the tree through its root system, and the adelgid is killed when it consumes the chemical-laden sap.

Kyle Napier, southeastern regional preserve manager, developed a treatment plan to protect key areas of hemlock trees on the state's nature preserves. The plan prioritizes critical habitat for species dependent upon the cool temperatures and shady, moist conditions provided by the hemlocks, such as the federally threatened blackside dace (*Phoxinus cumberlandensis*) and a number of rare plants including Fraser's sedge (*Cymophyllus fraserianus*). Other criteria include protecting trees for future nursery stock to re-seed drainages where the hemlocks thrive, and treating trees along trails to protect visitors, bridges and steps from falling trees or limbs.

Kyle Napier injects a hemlock in Blanton Forest with imidacloprid. The chemical treatment is absorbed by the roots and carried in the sap to the needles where the adelgid feed. KSNPC photo

"I hope that we are able to treat even more trees in 2009. Time is running out to protect the hemlocks in southeastern Kentucky."

Kyle Napier

At Bad Branch State Nature Preserve, 2,389 hemlocks received the pesticide treatment in the spring and fall of 2008. At Blanton Forest State Nature Preserve, which contains Kentucky's largest old-growth forest, 1,669 trees were treated in the spring. The total cost for both treatments was $19,000.

Staff and volunteers worked hard to give the hemlocks a fighting chance against the adelgid. Treatment involved mixing the pesticide in the injector on-site, which meant water had to be carried up the steep slopes numerous times each day.

The treatments may last from three to five years depending on the condition of the tree when it was first treated. It is hoped that in the intervening years more research into biological control methods and other means of protection will become available to help maintain hemlock populations in Kentucky.

Until that time, work will continue in an attempt to contain the infestations on the state nature preserves. Considering the devastation that has come to the Smoky Mountains and other locations throughout the eastern seaboard where the hemlock woolly adelgid has been long-established, the staff at the KSNPC will do all that they can to sustain this important mainstay of Kentucky's natural heritage.

Contact the KSNPC at naturepreserves@ky.gov if you would like to assist with this work or contribute towards the cost. A Web site has been developed by a dedicated group called Save Kentucky's Hemlocks at www.kyhemlocks.org.

KY EXCEL members demonstrate enthusiasm to go green

By Mary Jo Harrod
Division of Compliance Assistance

Do you want to "go green" in your home or office but need some ideas about becoming more environmentally friendly? Team up with KY EXCEL, Kentucky's voluntary environmental leadership program.

KY EXCEL members have no shortage of ideas to share. Diverse in nature, the projects were created from the individual members' needs and imaginations. Some of the projects are even award winners, receiving national recognition. But one common trait is that they all benefit Kentucky's environment.

Christopher Gray Sr., general manager and director of golf course operations at Marvel Golf Club, says that powering the turf equipment with vegetable oils has saved more than $5,000 from their fuel budget.
Photo by Marvel Golf Club

Marvel Golf Club

One of those members receiving honors is **Marvel Golf Club**, an advocate member located in Benton, near Kentucky Lake. Under the guidance of Christopher S. Gray Sr., general manager and director of golf course operations, Marvel has engineered and incorporated a unique water collection system that allows the golf course irrigation pond to be fed by the wastewater created from the surrounding 513 homes in the subdivision. In addition, storm water is harvested from the streets during rain events. Water from the irrigation retention pond is then used on the golf course to maintain quality playing surfaces.

Rain Bird®, a leading manufacturer and provider of irrigation products and services, named Gray as the winner of its 2008 Intelligent Use of Water™ Award, which recognizes persons or organizations whose innovation, leadership, ingenuity and overall commitment to improved landscape water efficiency has raised the standard for outdoor water conservation.

"Everything we do here at Marvel Golf Club is for the advancement of both the golf course and the environment it sits on," says Gray. "Marvel is only one of the hundreds of golf courses in Kentucky that provides an environmental sanctuary for both its golfers and the natural wildlife that exist within the property."

Marvel consists of 498 total acres, but only 83 acres are currently being irrigated. The club has also established 31.8 acres of native grass areas that run throughout and along the entire border of the golf course to help prevent runoff to Kentucky Lake by acting as a vegetative buffer.

For the past two years, Marvel staff members have used vegetable oils as a replacement for diesel fuel for golf course turf equipment. This has led to a more efficient and less expensive operation.

"After calculating the filtration process costs of the used oil, the price per gallon is 68 cents," says Gray. "We also purchase clean vegetable oils in bulk quantity to use in our equipment, at a price of 87 cents per gallon. These efforts have led to a 63 percent decrease in our use of regular diesel, saving over $5,000 from our fuel budget."

Other green measures include using only fluorescent bulbs, installing task lighting and heating at the workspaces in the maintenance facility and using an oil burner that uses recycled oil from the equipment to heat the maintenance shop in winter months. This burner has eliminated the expense of having used oil taken off site.

On the golf course, the clippings generated by regular mowing are returned to the playing surface. This allows Marvel to reduce the amount of nitrogen needed to maintain healthy turf grass and has reduced by 34 percent the labor costs necessary to properly set up the course for daily play.

Marvel's property serves as a habitat for American Bald Eagles. Five large brush piles per square acre have been constructed

ABOVE: The 16th hole and fairway at Marvel Golf Club is neatly manicured by equipment using vegetable oils instead of diesel fuel. LEFT: Storm water is collected after rain events to irrigate the golf course. Photos by Marvel Golf Club

from fallen limbs and branches to provide additional food and shelter areas for mammals and birds in the eagles' known hunting corridors. Eagles are seen often on the golf course perched on dead tree tops, which makes the 218 acres of native woodlands classified as a nonhunting preservation.

Marvel Golf Club has developed an extensive integrated pest management plan using an ecologically based system that uses biological and chemical approaches to control the various pests of the golf course. The club uses a fertilizer with a natural organic base, and fungicides and herbicides are used sparingly. To date, no insecticides or nematicides have been applied since Marvel has Bermuda grass, which is extremely resistant to all pests.

Lexington-Fayette Urban County Government (LFUCG)

Lexington-Fayette Urban County Government is a leader member that has completed 17 diverse projects, including white appliance recycling. In one calendar year, the Division of Solid Waste arranged to have 14,398 white appliances, such as refrigerators, stoves and air conditioners weighing approximately 960 tons, recycled through an outside vendor. Recycling these appliances is beneficial in that it helps keep them out of landfills, conserves natural resources and energy, and helps keep PCBs, freon, and other harmful substances out of the environment.

Additional LFUCG projects include:

• Reforest the Bluegrass—a local initiative to improve water quality in Fayette County. Through this initiative, LFUCG, community partners and volunteers plant trees on the banks of local streams to enhance water quality. Planting trees in these "riparian" areas helps improve habitat, lower water temperature and prevent water pollution. These trees also help reduce air pollution and promote the use of greenways. Through this initiative, more than 150,000 trees have been planted in Fayette County.

• Purchase of Development Rights Program—this program is designed to pay rural landowners to keep their farms undeveloped, thereby preserving green space and protecting water and air quality in Fayette County. To date, the Rural Land Management Board has purchased conservation easements (development rights) to 16,617 acres on 143 farms. The goal is to purchase conservation easements for 50,000 acres.

• Eliminate trash and waste—LFUCG employees participated with other volunteers in removing approximately 1.5 tons

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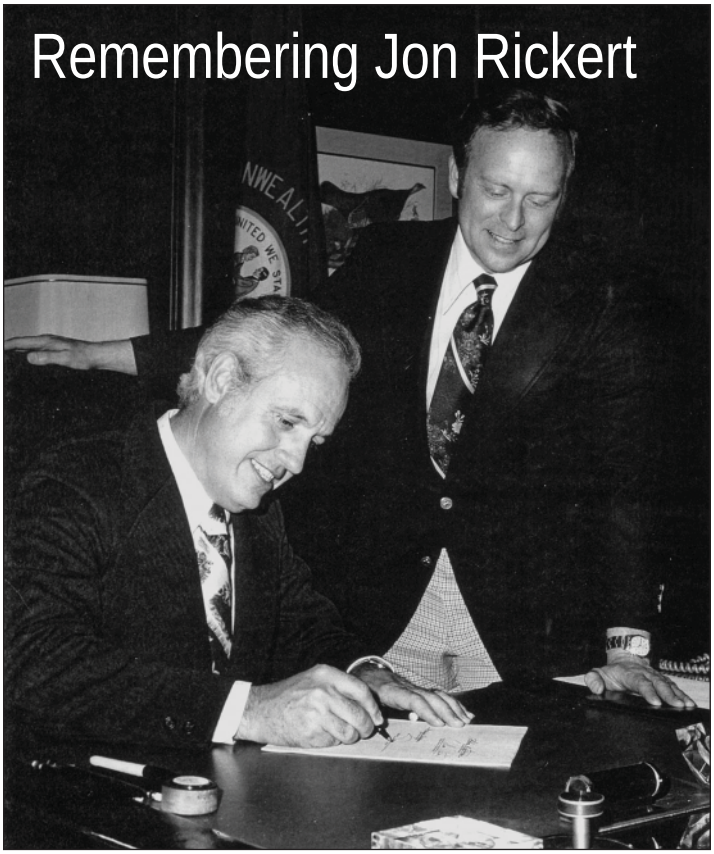
Remembering Jon Rickert



Former legislator, avid birder and conservationist leaves environmental legacy.

By Don Dott
Kentucky State Nature Preserves Commission

It was with deep sadness that staff at the Kentucky State Nature Preserves Commission (KSNPC) learned of the passing of Jon Edward Rickert last year at the age of 73. An Elizabethtown attorney, community leader and local icon, Rickert served in the Kentucky House of Representatives from 1968 to 1972, where he was named by the news media the most outstanding freshman legislator for his first term. But of more importance to the commission is the fact that Jon Rickert sponsored the Kentucky Nature Preserves Act, which created the KSNPC in 1976.

Rickert's commitment to environmental protection issues preceded the introduction of the commission's enabling act with his active opposition to the proposed dam that would have flooded the Red River Gorge. Out of that successful effort came the Nature Preserves Act, which he wrote and saw passed in 1976 after he left office. Rickert served as the first chairman of the KSNPC from 1976 to 1988. He also served on Kentucky's Environmental Quality Commission.

Rickert was an avid birder and traveled to all 50 states and several foreign countries following his avian hobby, which culminated in his authoring *A Guide To North American Bird Clubs*. He helped found the American Birding Association and served as its attorney and was part of an expedition into the swamps of Arkansas in 2004 to search for the ivory-billed woodpecker.

Rickert's lifelong commitment to conservation was demonstrated once again by his selection of the KSNPC to receive donations given in his memory. The commission was overwhelmed to receive contributions that came in not only from his home town, but from all across the U.S. and even from Great Britain.

In appreciation for this generous effort to yet again further the work of the commission, a trail will be named in his memory at Jim Scudder State Nature Preserve in Hardin County, and the donations will be used to help purchase additional land for the preserve. As the family desires, the trail dedication ceremony will be open to the public.

"I had the first opportunity to meet Jon Rickert when he accepted our invitation to speak at the 25th anniversary celebration of the Kentucky State Nature Preserves Commission in 2001. He and former Gov. Julian Carroll were the guests of honor as having been instrumental in creating the commission. It was reassuring to see both men were quite gratified by the work the commission had accomplished over 25 years, and yet with a recognition of the need to protect more natural lands.

"Jon's deep, lifelong commitment to the conservation of natural areas was beyond question."

Don Dott
Executive Director

ABOVE: ***In 1976, Gov. Julian Carroll signs the act that created the Kentucky State Nature Preserves Commission as Jon Rickert looks on.*** Photo by the Department of Public Information

The common shootingstar (*Dodecatheon meadia*) is found at Jim Scudder State Nature Preserve. In 1987, Hardin County Fiscal Court dedicated 58 acres of property to the KSNPC, which began the commission's first land protection partnership with local government. A second 109-acre tract of land was purchased in 2005. The preserve protects one of the best remaining examples of limestone glades in Kentucky. Photo by David Lyons

Members demonstrate enthusiasm to go green

Continued from Page 10

of trash from the Kentucky River in Fayette County during the annual Kentucky River Clean Sweep.

• e-waste—LFUCG's Division of Solid Waste has held electronic waste (e-waste) drop-off events for Fayette County residents. Last year, more than 203,000 pounds were recycled.

• Yard waste—approximately 15,332 tons of yard waste and 4,346 tons of brush were composted at the LFUCG compost pad last year to be used later for mulch. Since 2005, the leaf collection area has nearly doubled and a three-acre expansion of the compost pad has been completed.

• Alternative fuel—LFUCG, in conjunction with the University of Kentucky, Fayette County Public Schools and LexTran, implemented a joint initiative to use a blend of biodiesel (a renewable fuel made from soybean oil) and diesel in diesel-powered vehicles and construction equipment. In addition to lowering emissions, it is hoped this will encourage other local businesses and organizations to do the same.

• Energy management program—in order to become more energy efficient, LFUCG has implemented recent efforts including working with the Kentucky Department of Highways to upgrade all the traffic signals in Fayette County to LEDs; installing an energy-efficient geothermal HVAC system at the new Day Treatment Center; a used oil heater at Fleet Services to reduce natural gas usage; a solar-powered pond aerator at the Adult Community Corrections Center; vending misers on Parks and Recreation Department soda machines to reduce energy usage; establishing an internal energy efficiency award to recognize divisions that take steps to save energy and purchase energy-efficient items.

Incandescent lightbulbs were removed from 10,088 Fayette County stoplights during an LED retrofit in 2005. The retrofit saves $120,000 per year in electricity costs. More than 80,000 bulbs have been recycled through the Universal Waste program. Photo by LFUCG

• Most recently, LFUCG began investigating ways that unwanted pharmaceutical items (prescription and over-the-counter medicines), as well as infectious waste such as sharps, can be managed locally to minimize their impact on the environment and to educate residents on proper disposal of these items.

• Another project focuses on improving the way household hazardous waste (HHW) is being managed in Fayette County. Plans are being made to construct a permanent HHW facility/drop-off point.

• LFUCG joined the International Council of Local Environmental Initiatives and will participate in its voluntary Cities for Climate Protection Program, which conducts an inventory of current emissions and forecasts emissions for the future.

Everyone can make a positive difference for the environment, so do your part to "go green" for Kentucky.

New KY EXCEL members

Recently, the following businesses, individuals, organizations and communities joined KY EXCEL. Setting a positive example, these new members have committed to a variety of projects to improve and protect Kentucky's environment. Be an environmental leader and join KY EXCEL. Call 1-800-926-8111 for more information or visit http://www.dca.ky.gov/kyexcel/.

Advocate Members

C.I. Agent Solutions—Louisville
City of Russellville—Russellville
Linebach Funkhouser Inc.—Louisville
Palmer Engineering Co.—Winchester
Shield Environmental Associates Inc.—Lexington
UPS Green Team: Air Group Building—Louisville

Partner Members

E. D. Bullard Co.—Cynthiana
Katayama American Co. Inc.—Shelbyville
Tennessee Valley Authority Paradise Fossil Plant—Drakesboro

Leader Members

Lafarge Silver Grove—Silver Grove
Tokico (USA) Inc.—Berea

Master Members

Arkema Inc.—Calvert City
Kentucky Utilities Co. – Ghent Generating Station (GGS)—Ghent
Kentucky Utilities Co. – Green River Generating Station (GRGS)—Central City
Louisville Gas & Electric Co. – Zorn Generating Station (ZGS)—Louisville

Kentucky Division of Forestry, others respond to historic ice storm damage

A Blanket of Ice

By Lynn Brammer and Jim Funk
Division of Forestry

The severe ice storm that crippled parts of the Midwest and devastated Kentucky on Jan. 26 had an enormous impact on communities and resources from the Ozarks to Appalachia. The thick layer of ice, accumulating up to 3 inches in some areas, broke utility poles, toppled trees and left thousands seeking shelter or relying on generators to heat their homes. The freezing rain left more than 700,000 Kentuckians without power, making the state one of the hardest-hit. In fact, Kentucky Gov. Steve Beshear called the storm "the biggest natural disaster that this state has experienced in modern history."

In Kentucky, the icy layer covered all but the southeastern portion of the state. Ice-covered roads, downed power lines and fallen trees created extremely hazardous conditions causing states of emergency to be declared in 93 counties and 71 cities. Although emergency response was quick, the widespread damage and need for additional assistance prompted Gov. Beshear to call the Federal Emergency Management Agency (FEMA).

On the federal level, at the request of Gov. Beshear, President Obama granted an emergency declaration, which will allow state and local governments to be reimbursed by the federal government, and on the state level, 4,600 National Guard troops were activated to provide humanitarian assistance and help clear roadways.

Numerous state and local crews organized through the Emergency Operations Center were also on hand to help. Crews from the Kentucky Division of Forestry (KDF), the Kentucky Department for Fish and Wildlife Resources and the Kentucky Department for Public Health joined police officers, firefighters and other emergency personnel to assist with

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Heavy accumulations of ice caused power outages and hazardous driving conditions due to downed power lines and tree limbs.
Photos provided by the Division of Forestry

Managing storm-damaged forests and trees

By Jim Funk and Lynn Brammer
Division of Forestry

The recent ice and wind storms caused extensive damage to forests and trees in many areas of Kentucky. The combination of heavy ice, freezing temperatures and strong winds caused uprooting, wounding, bending and total breakage of trees. Consequently, landowners and homeowners have a wide range of questions regarding the need for removal or the potential for recovery of their trees. They want to know where they can get help to assess the damage, and what type of action is necessary to salvage their trees.

These questions are easily answered by professional foresters and certified arborists; therefore, it is recommended that property owners utilize these services. Kentucky Division of Forestry (KDF) officials, for example, provide residents with the necessary information to help restore and improve forest areas and ornamental trees. Consulting foresters and independent arborists also work with property owners to assess the damage and to determine the best management approach.

Of course, in the aftermath of a natural disaster, the initial concern is to remove hazardous tree limbs and woody debris from roadways, power lines and other structures. Once hazards are removed, the process of recovery begins. After surveying the type of damage and determining the volume and acreage of damaged timber, a professional forester will recommend one of several approaches to manage the forest stand.

One approach may simply be to let the forest recover on its own, especially if the damage is not extensive enough to warrant any kind of action. Another approach might be to implement timber stand improvement techniques such as thinning or removing undesirable species to improve the growth, value and regeneration of more desirable species. A final possibility is to consider a commercial harvest. If a harvest or salvage operation is considered, it is essential to understand the local timber market conditions. It is also necessary to seek professional forestry advice before making forest operation decisions. This may be an excellent time to invest in timber stand improvement practices instead of a commercial harvest.

In terms of landscape and ornamental trees, the type of damage will often determine whether the tree will recover. Breakage, for example is the most common type of storm damage. Hardwood trees are seldom killed by breakage, although it can leave the tree stressed and more susceptible to insect and disease. Although hardwood trees typically survive breakage and sprout new branches even when the tops are completely gone, most species of pine will die if the tops are broken. Depending on the extent of damage, most pines should be removed or salvaged as soon as possible.

Another type of damage is caused by uprooting. Uprooted trees quickly deteriorate due to insects and fungi and should also be salvaged or removed promptly. Wounds caused by broken or bent limbs are also common. Trees with major wounds will suffer stress or even mortality; however, trees that simply have broken or bent branches may recover if properly pruned and maintained.

Continued on Page 15

Trees damaged during the ice storm can be assessed by professional foresters or certified arborists who can provide property owners with the necessary information needed to restore or improve their forest areas and ornamental trees. Photos by the Division of Forestry

Learn more about your air during National Air Quality Awareness Week

By Elizabeth Robb Schmitz
Division for Air Quality

The Kentucky Division for Air Quality (DAQ) has partnered with the U.S. Environmental Protection Agency (EPA), and National Oceanic and Atmospheric Administration (NOAA) to celebrate National Air Quality Awareness Week during April 27 – May 1.

Throughout the week, DAQ encourages you to "Be Air Aware" and explore the following themes:

- Monday: Ozone and Particle Pollution
- Tuesday: What Causes Poor Air Quality?
- Wednesday: Keeping Your Heart and Lungs Safe
- Thursday: What are Air Quality Forecasts?
- Friday: What Can You Do to Help Make the Air Cleaner?

Additional information is available on the EPA Web site http://www.epa.gov/airnow/airaware/ or on the DAQ Web site www.air.ky.gov/news. Contact Elizabeth.Robb@ky.gov for help with planning an air quality awareness event in your school or community during National Air Quality Awareness Week. It is a great opportunity to raise awareness about reducing vehicle idling, conserving electricity, and much more!

Managing storm-damaged forests and trees

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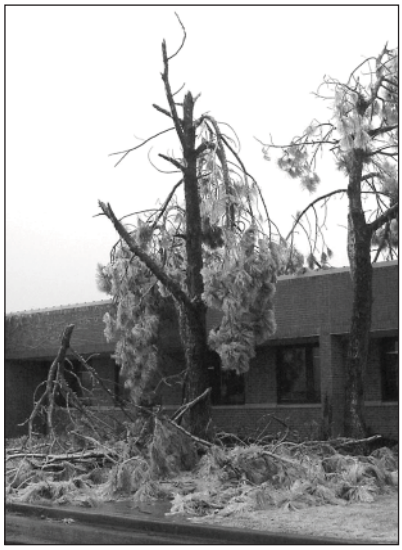


Although foresters throughout Kentucky are working together to provide information and assistance, property owners may have to be patient for an immediate response. The extent of the storm damage and the limited number of professional foresters available has caused some delay in response to the many inquiries and requests. In the meantime, there is opportunity to read and research the numerous topics related to storm-damaged trees. The KDF Web site at www.forestry.ky.gov is a great resource for information regarding damaged trees in urban and rural areas. The University of Kentucky's Department of Forestry is currently developing fact sheets to distribute through local county extension offices and to add to other publications on their Web site at www.ca.uky.edu/county/.

In summary, the best advice for property owners and communities is to consult and follow professional forestry advice. For more information, contact KDF at www.forestry@ky.gov, the Kentucky Association of Consulting Foresters at http://kacf.org, or a local forestry company in your area.

Heavily damaged pine tree. Photo by Division of Forestry

Regulated entities given new compliance tools

By Mary Jo Harrod
Division of Compliance Assistance

The Environmental Compliance Assistance Program (ECAP) of the Division of Compliance Assistance has created the following helpful tools for regulated entities:

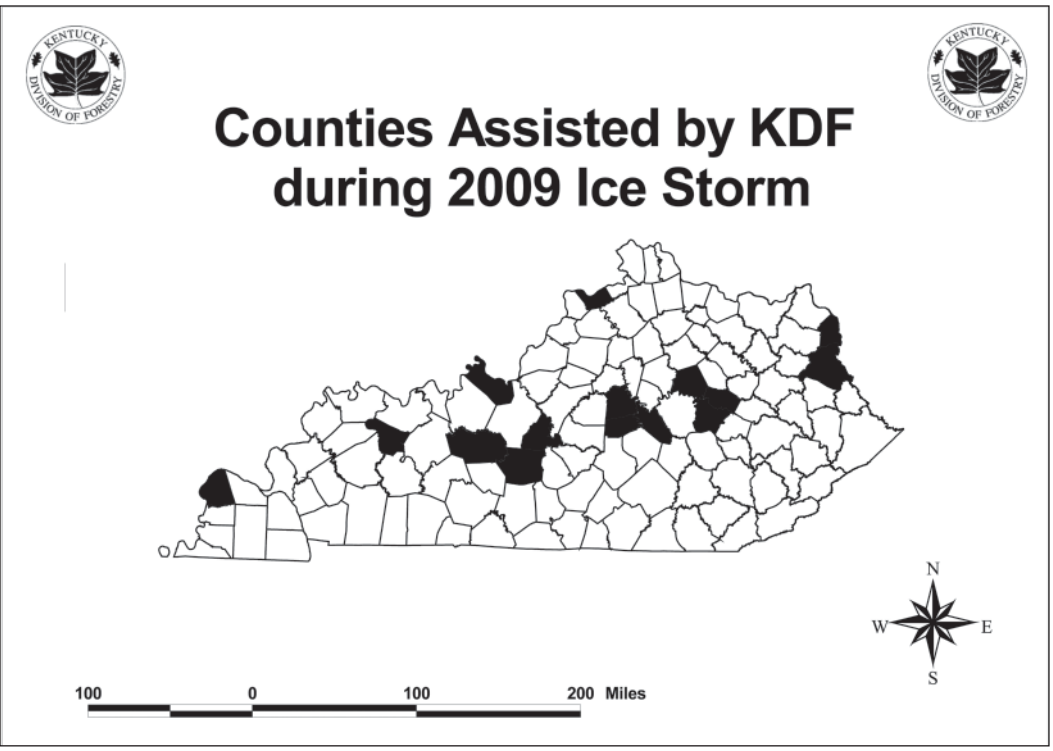
The **Kentucky Discharge Monitoring Report Guidance Manual** explains the proper way to complete and submit a Discharge Monitoring Report (DMR). DMRs are a requirement of wastewater permits and are a source of noncompliance if not completed properly. Use of the manual will help improve compliance and standardize reporting procedures.

The **2009–10 Environmental Recordkeeping Calendar for Dry Cleaning Facilities** helps dry cleaning facilities track key records that will document self-inspections and chemical usage, facilitating positive environmental performance.

The **School Laboratory Management and Chemical Cleanout Manual** informs schools about their chemical management responsibilities and how to deal with hazardous chemical spills. Proper storage techniques, training of staff, waste disposal, protective apparel and equipment, and procurement of chemicals for labs are some of the other topics covered in the manual and are essential to create an effective chemical management plan, as required by the state.

Further information about these helpful tools can be found at http://www.dca.ky.gov/complianceassistance/resources/.

A blanket of ice *Continued from Page 13*



TOP: ***Division of Forestry employees formed strike teams to clean up roadways in 15 Kentucky counties as indicated on this map.*** Map created by KDF

ABOVE: ***A forestry employee clears debris from a roadway in southcentral Kentucky.*** Photo provided by KDF Southcentral District

RIGHT: ***Forestry employees clear roads in Ballard County after the ice storm.*** KDF photo

road blocks, power outages and families in need.

KDF was one of the first agencies to respond to the cleanup efforts, mobilizing strike teams to assist with tree clearing just a few days after the storm hit. Employees with the division used chain saws and dozers to open roads for emergency access and to get utility vehicles into the areas to restore power. As field crews worked on storm debris, office staff provided support and maintained an incident command from the Frankfort office to coordinate between the Emergency Operations Center and the nine forestry districts. A total of 121 KDF employees assisted with the incident and spent 8,904 man hours working in 15 different counties.

The division was not without its own problems created by the ice storm. District offices in the western part of the state were without power for more than a week. Some of the office buildings were damaged, communications were limited and travel was a major issue for several days. Many employees also juggled the state emergency while trying to provide for family safety and restore power and water to their own homes.

"Our employees were very dedicated to the cleanup efforts," said Leah MacSwords, director of the Division of Forestry. "Many of our employees had storm-related problems at home, yet they stepped up to assist others in need."

Additionally, one of KDF's nurseries, John P. Rhody in Gilbertsville, remained without power more than three weeks, thus hampering seedling operations and delaying distribution.

As a means to assess the state's forest resources in the aftermath of the storm, the division plans to work with the USDA Forest Service to get aerial and ground evaluations. Reports from the field indicate severe damage to pine stands and variable amounts of damage to hardwood forests. Pine stands that have been recently thinned were hardest hit; however, hardwood forests also suffered from the heavy ice accumulation and extended cold weather. The evaluations will also help to identify critical areas with accumulated tree debris, which could increase the severity of wildfires this spring and for many years to come.

Although temperatures have warmed, roadways are cleared, and power is restored, the long process of evaluating the damage to Kentucky's forest resources is just beginning. Currently, the division is working with forest industry, private landowners, consulting foresters and other agencies to provide the highest level of assistance possible. For more information and to view photos from the ice storm, visit www.forestry.ky.gov.

Conservation and birding not just a job

Two Nature Preserves professionals take well-deserved retirement

By Deborah White and Ellis Laudermilk
Kentucky State Nature Preserves Commission

Even in lean times there are some things you just can't do without. The Kentucky State Nature Preserves Commission (KSNPC) is finding out how to operate without two of its most important scientists, Marc Evans and Brainard Palmer-Ball Jr., who have both recently retired. Their expertise in ecology and terrestrial zoology, respectively, has helped the commission to buy critically important lands and identify many species that need conservation attention. The depth of their experience made them the "go to" biologists, not only at the commission, but for many others as well.

Evans has served as a botanist, ecologist and even an acting director. However, his true calling is natural areas inventory and community classification. Upon his arrival at the commission, Evans started the natural areas inventory project, a process he learned in Illinois before coming to Kentucky. This county-by-county survey for high-quality natural areas resulted in the identification of many sites important to the state's natural heritage, including the high-profile, old growth forest known as Blanton Forest.

In 1991, he established the natural community classification system currently used by the commission and continued to refine it throughout his career.

What's remarkable about Evans is the way in which he threw himself into any area he was working in—no swamp was too deep and no mountain too high. He roamed the most remote parts of Kentucky by himself, which in these wild places separates even the toughest biologists. He encountered bears and fell from cliffs and used these experiences to inspire many of his coworkers and others to participate in the protection of beautiful natural places.

Evans serves on the boards of the Kentucky Natural Lands Trust, Bernheim Arboretum and Research Forest, and Pine Mountain Settlement School, working to connect and expand natural lands.

Palmer-Ball's story is thoroughly Kentucky. He grew up on a farm outside of Louisville where he first discovered his keen ear for bird sounds. Thus began his endless fascination with animals of all kinds and the makings of an all-around naturalist. Palmer-Ball began his career with the commission in 1985. He served as KSNPC's terrestrial vertebrate zoologist since 1988, covering primarily amphibians, reptiles, birds and mammals. He added countless records for rare bats, snakes, salamanders, mice, weasels and even a few plants to the commission's database. He amassed this knowledge without trapping, something he realized early in his career that he couldn't tolerate.

Palmer-Ball is mostly for the birds; he is one of Kentucky's best ornithologists and wrote *The Kentucky Breeding Bird Atlas*. He is active in the Kentucky Ornithological Society and is a long-time member of Louisville's Beckham Bird Club.

For an intriguing look back at some of Palmer-Ball's favorite places and his "best" and "worst" days as a commission biologist, read *"Reflections on 22 years of biodiversity protection in Kentucky"* in the Winter 2007 issue of Land, Air & Water.

KSNPC gratefully thanks Evans and Palmer-Ball for dedicating their professional careers and much of their personal time to the identification and preservation of Kentucky's rare species and natural areas. Some say working for the commission isn't just a job; it's a way of life. So, it's not surprising that both men plan to remain active in conservation issues, and hopefully the commission can continue to take advantage of their expertise. However, their daily contributions will be sorely missed. We wish them the very best and look forward to their continued commitment to the conservation of Kentucky's plants, animals and natural communities.

UPPER LEFT: ***Wood thrush.*** Photo by Steve Maslowski, courtesy of USFWS Digital Library

LEFT: ***Knobby Rock in Blanton Forest State Nature Preserve.*** Photo by Chuck Summers

Lead contamination involves soil removal at railyard

CSXT completes massive remediation project at Raceland car shops

By Bart Schaffer
Division of Waste Management

A portion of property formerly owned by CSX Transportation Inc. (CSXT) in Raceland, Ky., was the subject of a recent large remediation effort.

Prior to 1988, CSXT sandblasted and painted railcars in a portion of the Raceland railyard. These operations resulted in the accidental dispersal of lead-based paint over approximately five acres of the property. Beginning in 1998, the scope and extent of lead contamination was assessed during several rounds of sampling. Analytical results of lead ranged from nondetectable to 260,000 parts per million (ppm). Once sampling was complete, CSXT decided, with regulatory approval, to excavate all soils that contained lead at a concentration of more than 750 ppm, which is the industrial property use threshold.

Heavy machinery was primarily used to excavate the soils, which were then loaded into dump trucks and taken to a staging area for temporary storage pending TCLP (toxicity characteristic leaching procedure) test results. If the soil was contaminated above the regulatory limit of 5 ppm (for proper disposal in a solid waste landfill), it was treated with Portland cement.

Throughout the entire excavation process, thorough safety measures were taken to limit the impact of the soil removal on the surrounding environment. Continuous dust monitoring was implemented, which provided safe working conditions. Stockpiles of soil in the staging area were lined and covered to prevent dust emission. Truck tires were pressure washed at the entry/exit point of the staging area to prevent contaminated soil from being tracked outside the area. The rinse water was also captured for later disposal. A water truck was available for dust suppression purposes at all times. The contaminated soil was transported to the Green Valley Landfill for final disposal.

Lead-impacted soils found between the railroad track crossties were excavated by laborers using shovels. Vacuum machinery was then used to remove additional loose material.

Following the excavation, verification sampling was performed every 20 feet as specified in the approved work plan, which ensured remedial objectives had been met. Gravel was then placed in the excavated area, brought to grade and leveled.

The project was initiated in July 2008 and was completed in January 2009.

"This project was immense and complex in its scope and breadth," said Paul J. Kurzanski, manager of environmental remediation at CSX Transportation. "More than 21,000 cubic yards of lead-impacted soil was removed and stablized from the railyard while the facility was still active."

The successful remediation project was a cooperative effort between the Kentucky Division of Waste Management and CSXT that will result in an environmental covenant, restricting some portions of the remediated area to future industrial use only.

The project was completed without a safety incident and demonstrates a great example of what can be accomplished to address environmental impacts and reduce the risk to human health and the environment when all stakeholders work together.

ABOVE: ***A worker measures a sampling grid in the excavated area between the railroad tracks.***
RIGHT: ***Contaminated soil is covered until it is transported to the landfill for disposal.***
Photos by Bart Schaffer

Awards

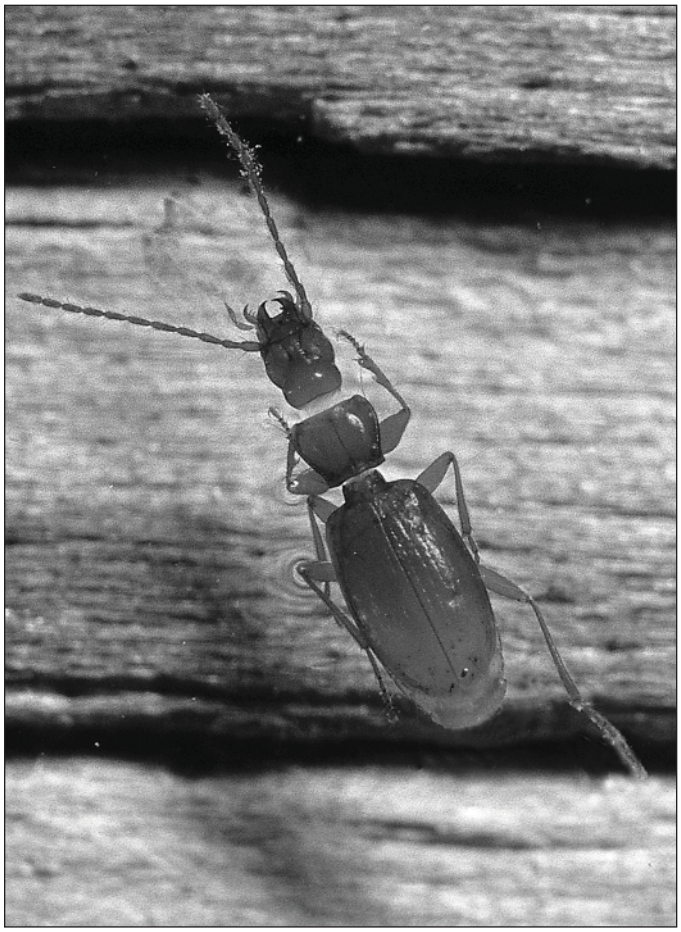
Barr receives Biological Diversity Protection Award

By Ellis Laudermilk
Kentucky State Nature Preserves Commission

The distinguished career of Dr. Thomas C. Barr Jr. was recognized by the Kentucky State Nature Preserves Commission (KSNPC) during its year-end commission meeting in December. Barr was the recipient of the 2008 Biological Diversity Protection Award, which recognizes a person, persons or organization that has made a significant contribution to the discovery and protection of Kentucky's biological diversity.

"We are very happy to recognize Dr. Barr for an outstanding career," said Don Dott, executive director of the Kentucky State Nature Preserves Commission. "He has made huge contributions to our knowledge of caves and the unique life forms they support. He has been unusually generous in sharing information about caves and their locations and inhabitants, which is something the cave community is very guarded about."

Barr was born in Nashville, where his lifelong commitment to the study and protection of caves began. Barr holds a Bachelor of Arts from Harvard University, a Master of Arts from Columbia University and a Ph.D. from Vanderbilt University. He has taught at Texas Tech and Tennessee Tech universities, and in 1961 he joined the University of Kentucky (UK) faculty as an assistant professor of zoology, where he remained for 32 years until his retirement in 1993. During his career at UK, he served as the chair of the Zoology Department and president of the National Speleological Society, an organization dedicated to the study, conservation, exploration and knowledge of caves.



Rogers' cave beetle was described by Dr. Thomas Barr as a new species to science in 1981. Photo by Ellis Laudermilk, KSNPC

Barr's research focuses on the ecology and evolution of cave communities and ecology and systematics of carabid beetles, most notably of mountaintops and caves. He is recognized as an international authority on cave ecosystems and has published more than 100 papers in refereed journals. Following are highlights of his most important or Kentucky-related publications:

• In 1959 he published a paper on new cave beetles from Kentucky and Tennessee. *Caves of Tennessee*, a widely used and often cited book, was published in 1961. In 1962, he published the *Blind Beetles of Mammoth Cave, Ky.*, and in 1963 he published an ecological classification system for cave organisms that is still used today. *Cave Ecology and the Evolution of Troglobites* was published in 1968, and in the late 1960s and early 1970s, after extensive work in Mammoth Cave, he published a two-part series titled, *Ecological Studies in the Mammoth Cave System of Kentucky.*

• In the late 1970s and early 80's, Barr co-authored two of KSNPC's technical reports on the cave fauna of the eastern and western Kentucky coal fields. He is a leading authority on cave beetles, describing many species that were new to science, and in 1985 he published one of his major works on beetles titled, *Pattern and Process in Speciation of Trechine Beetles in Eastern North America.*

• During the 1990s he conducted status surveys for rare cave beetles in Kentucky and Tennessee, and his data and recommendations were essential in determining which cave invertebrates were included on KSNPC's list of rare biota.

Barr continues to be actively involved in the protection of caves by publishing papers, sitting on boards, working with state and federal agencies, local and national cave organizations and local citizens, such as the recent efforts to protect the Sloan's Valley cave system in Pulaski County.

For more than 50 years, Barr has been involved in cave ecology research and the protection of these fragile ecosystems. The KSNPC recognizes and thanks him for his major contributions to our knowledge of Kentucky's biodiversity.

Small business team named best in the country

By Mary Jo Harrod
Division of Compliance Assistance

The Kentucky Division of Compliance Assistance (DCA) is proud to announce that Kenya Stump, manager of the Division of Compliance Assistance's Environmental Assistance Branch, was part of a team that has received a national environmental award for its role in the U.S. Environmental Protection Agency's (EPA) Collision Repair Campaign. This campaign, conducted by the EPA in cooperation with state environmental agencies, focused on educating auto body shops about new air quality requirements.

Kenya Stump

Stump received the Office of Small Business Program Director's Award for Outstanding Accomplishments because of her compliance assistance efforts to help small businesses comply with environmental requirements. Stump, who represented Kentucky in the EPA's Region IV state small business team, was presented the award in October at the Administrator's 20th Annual Small Business Awards Ceremony in Washington, D.C.

Stump, along with the rest of the Division of Compliance Assistance's environmental assistance team, was instrumental in planning and conducting two training events in Kentucky for auto body shop operators. Both events were well attended and addressed issues, such as regulatory requirements, best management practices and pollution prevention. Auto body shops are a source of air pollution, primarily due to emissions that occur while painting damaged vehicles. As a result of this training, more auto body shop owners will be aware of the regulations governing their business and have the knowledge to minimize emissions that create violations and hazards to the environment.

According to the EPA, "the Collision Repair Campaign was an effort to address health threats through a two-year campaign to drastically reduce auto body emissions at the national level. Each EPA regional office involved in the campaign worked with its respective partners (e.g. community, industry, small businesses, etc.) to significantly reduce human and environmental exposure to air toxics from auto body shops. While similar work has been done in the past in pockets around the country, this voluntary campaign represents a unique, unprecedented nationwide effort to accomplish bold goals in toxic reductions."

DCA's participation in the campaign is an example of the proactive efforts the division is taking to help ensure that Kentucky's businesses have the information necessary to comply with environmental rules and responsibilities. Other training events held by the division in 2008 include training for colleges and universities and training for hospitals and pharmacies. In the coming year, DCA plans to hold additional training events. Discussions have already begun regarding training on air quality permitting, hazardous waste management, stormwater management and wastewater discharge reporting.

DCA is also assisting hundreds of clients each year that contact the division by calling 800-926-8111 or e-mailing envhelp@ky.gov. This assistance is free and DCA's clients report that their interaction with the agency is not only increasing their knowledge about their requirements, it is also helping them identify and implement strategies that are saving them money, as well as improving their environmental performance.

Cleaner air for Kentucky's children ***Continued from Page 5***

30 school buses implementing an idle reduction policy that cuts 30 minutes of idling a day can save 1,350 gallons of fuel a year, a cost savings of $2,794.50 a year (based on fuel costs of $2.07 per gallon). To calculate your own potential savings, visit www.epa.gov/cleanschoolbus.

Finally, an additional $1 million in Clean Diesel School Bus funding will be available through environmental mitigation project funds administered by E.ON U.S. The funding reflects both the company's commitment to improving air quality through implementation of emission control technologies and its support of Kentucky's public schools. Projects will be implemented by Dec. 31, 2010.

Save the date

Empowering our Future

The 33rd Governor's Conference on the Environment will be held Sept. 30-Oct. 1, 2009, at the Lexington Convention Center.

This year's conference focuses on Kentucky's energy challenges and opportunities, and how we can meet our future energy needs in an environmentally sound manner. Topics to be addressed include:

- How do we achieve energy security in a carbon-constrained world?
- How do we sustainably develop our biomass resources?
- What opportunities do we have to increase our renewable energy portfolio?
- How can Smart Grid technologies help us achieve our energy efficiency objectives?
- How are actions at the federal level going to affect Kentucky's energy landscape?

Conference attendees are invited to (and will have the opportunity to) engage in lively and thought-provoking discussions regarding these and other topics related to energy and the environment. Your attendance will ensure there is broad participation from a range of interests within the commonwealth.

For more information, contact Natalie Jensen at 502-564-7192 or e-mail natalieE.jensen@ky.gov.

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