

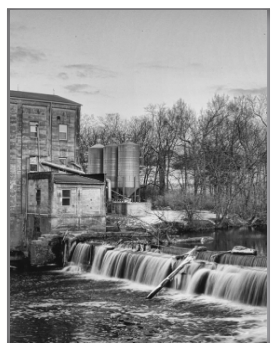


Land & Air & Water

Kentucky Energy and Environment Cabinet

Volume 26 Number 4
Fall 2015

Features



1

Renewable energy

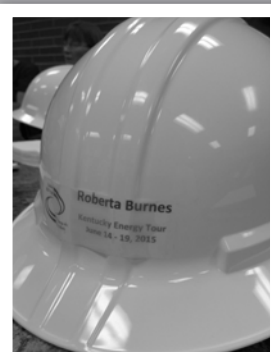
Kenya Stump discusses Kentucky's history and the future of hydroelectricity.



9

Jesse Stuart

Revel in this beautiful nature preserve that was muse to the famous Jesse Stuart.



13

Energy Tour

Join educators as they learn about energy and its source as they tour across Kentucky and Tennessee.

Land Air & Water

Fall 2015 • Volume 26 • Number 3

Contents

From the Secretary's Desk	Opposite page
Conservation District assists with inmate garden.....	3
DLG thinks big savings with energy innovations	4
Environmental protectors trained to respond	5
U.S. fires call Kentuckians to action	6
American Cave Conservation.....	8
The Floracliff Bioblitz	11
A historical gem in New Castle	12
Case studies tell stories and so much more	15
Teachers explore air quality	16
The Governor's Conference on Energy and the Environment	17
Get involved n clean water.....	18
Awards	19-20

Our Cover

This beautiful picture of the Cumberland River was taken by Harold Kelly close to Creelsboro in Russell County. Kelly lives in Glasgow and is an avid photographer and nature lover.



The Energy and Environment Cabinet does not discriminate on the basis of race, color, religion, sex, national origin, sexual orientation or gender identity, ancestry, age, disability or veteran's status and provides, on request, reasonable accommodations including auxiliary aids and services necessary to afford individuals with disabilities an equal opportunity to participate in services, programs and activities. To request materials in an alternative format, contact Carrie.Searcy@ky.gov or call 502-564-5525. Hearing- and speech-impaired persons may contact the agency by using the Kentucky Relay Service, a toll-free telecommunication device for the deaf (TDD). For voice to TDD, call 800-648-6057. For TDD to voice, call 800-648-6056.

Printed by Post Printing, Lexington, Ky.

From the Secretary's Desk

I write this, my final Land, Air and Water message, with several different emotions. First, I'm feeling nostalgic. I'm remembering my first year with the cabinet and working with so many wonderful people to help develop Governor Beshear's energy plan. I'm still surrounded by many of those people, and we have been fortunate to bring on some additional talent over the years.

The cabinet was newly created in 2008 to reflect Governor Beshear's vision to approach our state's energy and environmental goals holistically. As he remarked at this year's Energy and Environment Conference in September, creating a cabinet that included energy development programs with environmental protection programs was rare among state governments in 2008. Today, however, given all the factors that are having an influence on Kentucky's energy landscape, such a structure has served the Commonwealth well. Several other states have even followed suit.

Another emotion I'm feeling is hopeful. If you remember from one of my prior LAW messages, I'm a glass half full guy. I'm hopeful that the foundation we have been able to create through so many successful initiatives will continue to grow and provide benefits for Kentuckians into the future. Just recently, the Division of Water indicated it is proposing to add 20 new waterbodies as outstanding state resource waters (OSRWs) and 13 new waterbodies as "exceptional" waters. These are good indicators of water quality improvement. Since 2008, the list of OSRWs has grown from 157 to 423.

I could go on listing the number of indicators that show improvements in air quality, water quality, cleanup of contaminated properties, etc. As Kentuckians, we should all be proud of these successes. We need to remind ourselves that these successes did not occur overnight, and they did not occur without a great deal of investment of time and money. Finally, they did not occur without the cooperation and commitment from businesses and industries operating in Kentucky.

I might be an optimist, but I'm not naïve. We still have many vexing and complicated challenges confronting us. We know so much more today, technologically and programmatically, about effective environmental protection and natural resources policies and initiatives. But there will always be the need to make improvements, to seek out better and more cost-effective ways of going about our work. This is one reason I am so excited about the consolidation of the Energy and Environment Cabinet's Frankfort offices into one facility. The ability of people within the cabinet to collaborate with one another across disciplines is something I hope all of you are looking forward to.

These eight years have gone by so quickly. I feel truly honored to have worked with so many dedicated, intelligent, creative people in EEC. I want to thank you for your service to the Commonwealth and know that I will always be a champion of yours. I am also fortunate to have worked with so many wonderful individuals across state government and within the private sector. We have strong partnerships across the state, and these partnerships will be important in addressing challenges going forward. Finally, I am grateful to Governor Beshear for asking me to join his administration. He has been a terrific boss, and has become a true friend.



Visit Land, Air & Water online at
<http://eec.ky.gov/Pages/LandAirWater.aspx>

Printed on recycled paper with state and federal funds.

Land Air & Water

since 1988

Commonwealth of Kentucky
Steven L. Beshear, *Governor*

Energy and Environment Cabinet
Dr. Leonard Peters, *Secretary*

Department for Environmental Protection
R. Bruce Scott, *Commissioner*

Department for Natural Resources
Steve Hohmann, *Commissioner*

Department for Energy Development and Independence
Dr. Leonard Peters, *Acting Commissioner*

Editor and Creative Design
Carrie Searcy

Agency Contributors

Lanny Brannock
Roberta Burnes
Karen Cronen
Eileen Hardy
Mary Jo Harrod
Johnna McHugh
Kenya Stump
Jennifer L. Turner
Zeb Weese

Land, Air & Water is published quarterly by the Energy and Environment Cabinet. Subscription to this publication is free.

Email: Carrie.Searcy@ky.gov or telephone 502-564-5525 to have your name added to the mailing list. Address changes and deletions should also be addressed in this manner.

Please contact the editor for permission to reprint.

Q&A | *Renewable energy- hydroelectricity*

Options for Kentucky's energy independence

As part of an ongoing series of articles on renewable energy, Land, Air and Water staff sat down with assistant director of Renewable Energy for the Department for Energy Development and Independence for a one on one discussion on Kentucky's renewable energy landscape. In this issue, Kenya Stump discusses the power of water in Kentucky — hydroelectricity. In all, Kentucky has seven large scale hydropower operations and one small commercial operation. Currently on the Ohio, American Municipal Power is under construction with three new facilities — Meldahl near Maysville, Cannelton and Smithland in Western Kentucky.

What excites you most about hydroelectricity?

KS: I think for me, it was when I realized that we have such a rich culture with hydroelectricity. Dix Dam was built by Kentucky Utilities from 1924-1925 and it is beautiful. With all three units running, it produces 24 Megawatts (mw) of power.

And then we have all the history with the Tennessee Valley Authority and the construction of the Kentucky Dam in 1938. It has a net dependable capacity of



184 mw and its reservoir is the largest in the eastern U.S.

We all remember the movie “Oh Brother, Where Art Thou?” and the true-to-life portrayal of the great flooding that occurred as the TVA dam went into service. Even though people had to be relocated, the economic development and opportunities for Kentuckians that resulted from the dam projects during that era were amazing and are very much a part of our cultural heritage.

What would surprise people to know about hydroelectricity in Kentucky?

KS: I think most Kentuckians are not aware that hydroelectricity is our no. 1 source of renewable electricity generated in Kentucky. Solar is so trendy these days that a lot of people forget about hydroelectricity. In 2014, our hydroelectric operations produced 3.4 percent of all our electricity or about 3,090 gwh of electricity. That's enough electricity to power almost 230,000 Kentucky homes every year.

The other thing that surprises most people is that hydroelectric operations are one of the most efficient forms of electricity production. Efficiency is the percent of the available energy that



Kenya Stump

is converted to electricity. Hydroelectric plants are in the neighborhood of 90-95 percent efficient compared to a fossil plant that rates at only 40 percent or a solar photovoltaic at 11-15 percent.

Hydroelectric operations however, are at the mercy of Mother Nature and can't run at 100 percent of their potential at all times. Compared to a fossil fuel fired electric generation plant that runs between 70-80 percent capacity, hydroelectric operations are in the neighborhood of 50 percent, but can be greater depending on design and the type of operation.

So, why don't we see more of it?

KS: Even though hydroelectricity plants have a life span between 50-100 years, there are significant up-front capital costs and more importantly permitting requirements. From addressing any endangered species to protecting the habitat and water quality around the project, the environmental permits alone can be daunting.

Of the renewable electricity generating technologies, hydroelectricity tends to be a very cost effective option, but remains very locationally dependent. I think that is what puts it at a disadvantage. I can't just drop-in a hydroelectric plant at my house or in my neighborhood. These operations tend to be much larger in scale (30 mw or greater), which means that the owner of these operations either has an electricity load to serve in-state or the ability to sell electricity in the market. With little to no expected growth in electricity demand, expanding our electricity



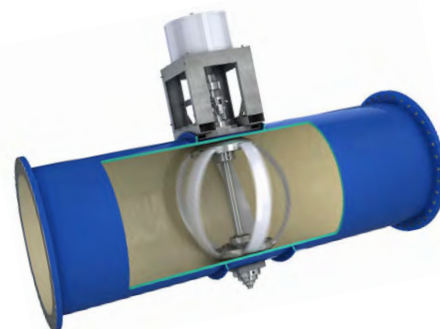
TOP: Kentucky Dam. Photo by TVA.

ABOVE: Dix Dam Hydro Station. Photo by LG&E/KU.



LEFT: Weinsenberger Mill. Photo by Weinsenberger Mill

BELOW: An in-pipe hydropower system and its inner workings. Photo by Renewable Energy.



generating capacity doesn't make sense if we have nowhere for it to go.

That said, Kentucky does have hydropower technical potential. The National Renewable Energy Laboratory estimates in the "U.S. Renewable Energy Technical Potentials: A GIS-Based Analysis" that we have over 4,000 gwh of generation potential. This is just technical potential, to make it a reality there has to be appropriate market and economic conditions. Most of that generation is probably due to our existing dam structure. In fact, the U.S Department of Energy's Oak Ridge National Laboratory, estimated that Kentucky has potential in 29 sites across the Commonwealth, representing over 380 mw in potential capacity.

Kentucky will need to tap into our hydropower potential given the future regulatory environment around fossil-fueled electricity production. It is plausible that the changing regulatory environment could change the economic and market landscapes making these projects more attractive to investors.

Outside of using our existing dams, I am very excited about the future around small distributed hydropower turbines and the potential from our water and waste water infrastructure. Streams and rivers are not the only water that flows throughout Kentucky. We have a lot of pipe infrastructure to deal with our wastewater and provide drinking water for our citizens. There

has been recent advancement in small and micro turbines to take advantage of this water flow potential right underneath our streets, better known as "water-to-wire energy recovery."

One example is from Lucid Energy, which received U.S. Department of Energy funding for this technology and is targeting water-intensive industrial, municipal and agricultural facilities as early adopters for the water-to-wire technology.

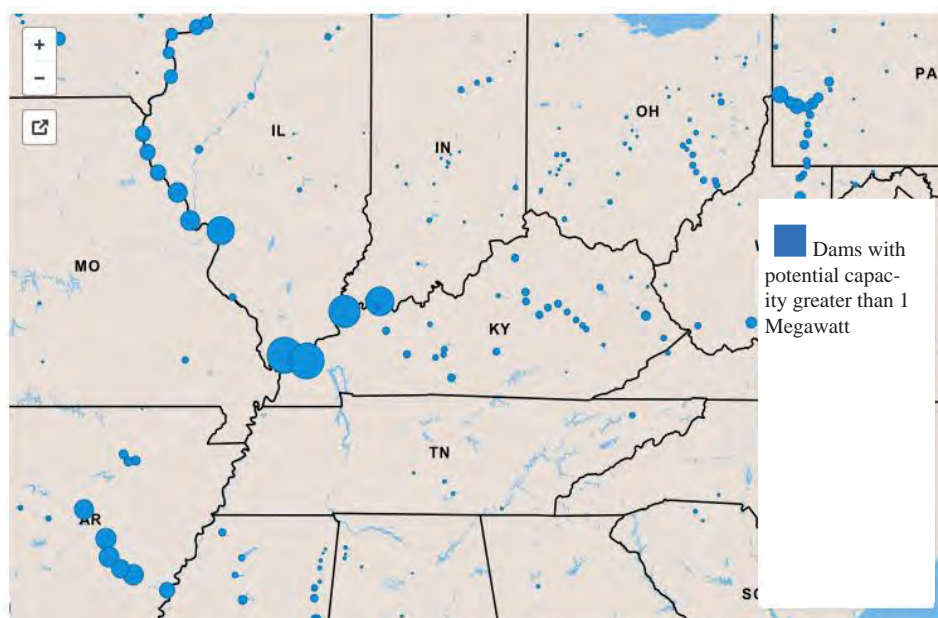
Whatever the future of hydroelectricity in Kentucky may be, I am excited to see what happens and watch it grow.

Most of what you have talked about is very large projects, are there any examples of small hydropower in Kentucky?

KS: Yes, we have a great story of the Weinsenberger Mill in Midway, Kentucky. They remodeled their existing hydroelectric operations with the assistance of a Department of Energy award and have 50 kw of generating capacity. The Mill is family owned and has been operating for 6 generations. The new hydropower systems enables the Mill to run more efficiently and ensures sustainability for their future generations. Through their renovated system more than enough power is produced for all the mill's needs and using net metering, it can even put electricity back onto the grid.

What do you see as the future for hydroelectricity in Kentucky?

KS: I think we will have to see if



This map demonstrates the potential capacity to generate clean hydroelectric energy at existing non-powered dams across the U.S.

Source: Oak Ridge National Laboratory

CONSERVATION DISTRICT ASSISTS WITH INMATE GARDEN

*By Andrew Laswell
Division of Conservation*

Conservation districts across the nation are tasked with the need to save taxpayer dollars, and Harlan County Conservation has found a way to do just that, feed inmates and even teach a viable trade as well. The Harlan County Conservation District began a project to assist the local detention center in their existing garden operation to not only train prisoners in sound conservation practices but also to provide fruits and vegetables to supply the inmate cafeteria and cut taxpayer costs.

Harlan County Conservation District Chairman David Howard said, "We got involved originally through a request by the previous jailer and were happy to help because there is very little agriculture in Harlan. Every little way we can contribute and teach others is a big success," remarked Howard.

The conservation district and the detention center began working together in 2008 on the inmate garden. "We checked into grants and were able to purchase fruit trees, provide irrigation and contribute money towards the greenhouse. We also provide assistance in teaching irrigation and how to handle the crops," continued Howard.

Through assistance from the conservation district, the detention center has been provided with 250 apple and pear trees. The staple crops of the center however, have been beans and mostly potatoes. Harlan County Jailer BJ Burkhardt commented on the need for a crop to feed a growing inmate population, "We had to figure out a way to feed all these inmates for 12 months a year. For us, potatoes were the answer."

The additional fruits and vegetables have also been incredibly helpful in the jail's cafeteria. Burkhardt said, "The crops we grow in our inmate garden provide a better quality food than most detention

centers. Those inmates are usually served a 'TV style' dinner, and here we are able to give them bigger portions of healthy food that provides the inmates with a healthier lifestyle overall," Burkhardt continued.

The Harlan County Conservation District has also organized and channeled specialists from the University of Kentucky to provide technical assistance to the center. The most current collaboration is looking at an alternative energy source to run their greenhouse. The greenhouse is currently powered by propane gas and has not been a cost efficient solution. Now the conservation district is working with UK and the detention center to explore other money saving energy options.

It was estimated in 2011 that the inmate garden saved taxpayers nearly \$9,000 that year and each year thereafter. This figure does not include savings on other crops such as beans. In 2015 however, the savings will be much greater due to an expected high yield fruit harvest.

Not only has this project saved money for the detention center

as well as taxpayers, but it has also taught many life lessons to those inmates who are fortunate enough to be able to participate in the program. These prisoners are educated on how to provide food for their families upon release. This unique skill set is especially beneficial in Eastern Kentucky where agriculture is waning. Burkhardt notes, "Inmates here learn how to work in the garden, see the process and can use that whenever they get to where they are going. Hopefully on the outside they can apply the steps and be optimistic in the skills they have gained from the time they spent in here."



TOP: Inmates work the garden on a clear morning.

Photo by Derrick Howard.

ABOVE: The greenhouse that was donated from the high school houses many of the budding plants.

Photo By Susie Mavinidis

SMALLER COMMUNITIES THINK BIGGER SAVINGS

Greensburg is an example of success for the Department for Local Government

By Eileen Hardy
Division of Efficiency and Conservation

In many communities, one of the largest expenses local governments are faced with are energy costs and in most cases they do not see these costs as controllable. Three years ago, Greensburg officials took a good look at their municipal buildings and saw the drastic need for change. With many opportunities for improvements and energy conservation measures, Greensburg began investigating methods of lowering their energy consumption and updating aging infrastructure that would increase their properties overall value, extend the life of each facility and reduce operating costs. Making this a reality however, would be a big financial challenge for a small Kentucky town of only 2, 200 residents.

City officials decided to take a comprehensive, city-wide approach to addressing their maintenance issues, wanted infrastructure improvements and dire need to lower uncontrollable energy costs. Knowing the amount of work and the limited amount of resources available, Mayor Lisle Cheatham knew that a traditional approach simply would not work.

"In order for us to get all the work done that was needed, an Energy Savings Performance Contract (ESPC) was the logical method to tackle such a comprehensive set of needs," said Cheatham. "From defining the scope of work to financing a performance contract, it just made sense."

ESPCs are a guaranteed savings from the maintenance and operations budget (utilities) used as capital to make needed upgrades and modernizations of facilities and is paid back over a specified period of time through lowered energy and operations costs. These types of projects have been utilized in Kentucky extensively by state government, state universities and larger

municipal jurisdictions in Louisville, Covington and Bowling Green. Mirroring these larger entities, smaller local governments throughout the state are turning to this type of comprehensive project more often as they begin to see the benefits that ESPCs can offer.

More and more communities like Greensburg are participating in an outreach and technical initiative designed to educate local governments on the use of an ESPC as a tool to lower energy usage and take care of aging infrastructure issues. This program also provides direct technical assistance to those local communities in developing plans, requests for proposals and criteria to review responses

received from contractors. Through a grant from the U.S. Department of Energy, the Kentucky Department for Energy Development and Independence, the Department for Local Government (DLG) developed the program to assist local governments in understanding the ESPC process and applying it.

"This funding has allowed us to provide local officials with the support that makes them comfortable with performance contracting," said Harry Carver, program administrator at DLG. After several years of countless workshops, forums and any opportunity to talk about the program, Carver sees an increasing interest. "Between our outreach and local officials now relaying their experiences to peers, the level of interest is on the rise," said Carver.

After issuing a request for the proposal, the city partnered with Harshaw Trane, an energy service company, to implement a \$1.3 million ESPC. Energy efficiency improvements including HVAC and lighting upgrades were made to Greensburg's City Hall, Housing Authority, Police and 911 Dispatch. The Waste Water Treatment Center, the Maintenance Garage, Fire

Continued on Page 16



LEFT: A Meter Reader runs a report from their truck with the new equipment purchased in part from the DLG and the ESPC. **BELOW:** The old meter (left) and the new updated meter (right) are pictured.

Photos courtesy of Greensburg Co.





ENVIRONMENTAL PROTECTORS

-trained to respond

By Lanny Brannock
Department for Environmental Protection

Incidents and accidents that cause environmental impacts happen nearly every day across the Commonwealth. The Kentucky Department for Environmental Protection dispatches its Environmental Response Team (ERT) whenever environmental disaster strikes.

These events can range from a few gallons of diesel fuel spilled onto a roadway to impacts that are felt for years after the accident, such as harmful materials seeping into the drinking water supply or even deadly chemicals being released into the air.

The ERT is trained to respond immediately to environmental emergencies such as accidents where hazardous materials may have been spilled or released. They have expertise in the use of equipment and methods to monitor air, water and soil for hazardous materials and pollutants that arise from transportation accidents, facility spills and large fires.

The ERT is also part of the Kentucky Natural Disaster Plan, and respond to natural disasters such as floods, tornadoes, severe weather, earthquakes, forest fires, landslides and water shortages.

During natural disasters, the ERT helps ensure the stability of hazardous material releases and works to limit further environmental damage.

The ERT staff also has other roles within the department. While performing their normal duties to keep the environment safe, the ERT staff are on call for seven days at a time to respond to potential and current environmental disasters and are required to train at least twice a month. Special teams within the ERT have

extra duties to ensure their equipment is always ready to perform as needed. Some responders may spend long hours even on a relatively minor incident or be deployed for several days away from home on a large incident or natural disaster. Members are also expected to perform some level of outreach to responders and facilities that may be the source of a future environmental emergency.

Continued on Page 7



TOP: Workers survey damage from the P&L train derailment.

BELOW: ERT workers monitor air data during the aftermath of an environmental emergency.

Photos by Environmental Protection

U.S. fires call Kentuckians to action

By Jennifer Turner
Division of Forestry

This year has been a record breaking year for fires in Alaska and across the west, and Kentucky was quick to respond.

After receiving a request for firefighter support, 21 Kentucky Division of Forestry firefighters volunteered and were on their way to Alaska in less than 24 hours.

Ed McNeal was one of the firefighters and was elated about the challenge and the location. "When I got the call I wasn't nervous at all, I was excited for the chance to go to Alaska," said McNeal in a phone interview. "I was ready to go and do good things," McNeal continued.

Once in Alaska the Kentucky firefighters were sent to the historic town of Flat and then onto the Miskevik Slough. McNeal explained how fighting fires differed in Alaska as compared to the lower 48. "In Alaska, we primarily were there to protect structures and historic landmarks. In the lower U.S., we operate at 100 percent suppression," said McNeal.

During the 21 days McNeal and his crewmates were gone, the division's Facebook page was very active. Many Alaskans posted messages of gratitude, admiration and expressed safety concerns via the social media outlet. Even Alaska's Governor Bill Walker offered his thankfulness on the division's Facebook page writing, "Alaska is blessed to have so many dedicated men and women from across the country helping fight our wildfires this summer. Thank you to the crews of the Kentucky Division of Forestry for your service, and to all the other brave firefighting crews that are helping to keep our state safe."

Continued on Page 16

A special thanks to our Kentucky firefighters-

ALASKA-

Dwayne Anderson	Mike Hale
Steven Bolton	Nathan Hall
Chad Brothers	Matt Haywood
Russell Brown	Brandon Howard
Will Davidson	Bill Knott
Haley Frazier	Matthew McDavid
Trevor Gillum	Adam McGuire
Joe Mirus	Ed McNeal
Kevin Radschweit	John Mink
Terry Stamper	
Nick Valentine	
Floyd Willis	

CALIFORNIA-

Seth Dykes
Trevor Gillum
Cory Porter
Ed Stephens
Michael Taylor
Allen Watts

NORTH CAROLINA-

James Armstrong
Josh Blevins
Steve Bolton
Harley Davidson
Will Davidson
Michael Froelich
Josh Frazier
Sarah Gracey
Brandon Howard
Ralph Marcum
Joe Mirus
Kevin Radschweit
Travis Stamper
Marcus Watson
John Wethington

WASHINGTON-

Nathan Hall



TOP: Kentucky Firefighters battle the Alaskan blaze protecting historic monuments and homes. **ABOVE:** Kentucky Firefighters travel by helicopter to their next destination. Photos by Brandon Howard (top and bottom) and Jason Coli (middle)

ENVIRONMENTAL PROTECTORS

Continued from Page 5

Recently, the ERT made use of all their training and responded to the massive flooding in Johnson County, where hazardous material containers were strewn across the flood-damaged area. As part of the response, ERT used a drone to spot potential hazards in the flooded area to make sure the environment was protected and no hazardous material containers were leaking.

Sometimes ERT responses, like the one in Johnson County, are very large in scale. The 2015 General Electric plant fire, the 2012 P&L train derailment and the 2000 Martin County coal slurry spill are all examples of large-scale ERT responses.

The Martin County spill was a significant environmental disaster when approximately 300 million gallons of coal slurry from the Martin County Coal Corporation slurry pond broke loose into an underground mine. ERT Branch Manager Robbie Francis was a relatively new ERT employee at the time. In a YouTube video posted by the Kentucky Department for Environmental Protection, Francis called the event a real ‘eye opener,’ as the pond emptied its contents into waterways, roadways and ground water. “It affected water drinking plants all the way to Ashland, Kentucky,” said Francis. The spill also created a very deadly environment for fish, wildlife and spilled into the Ohio.

Francis stated that due to the massive size of the spill and the lack of collaboration with other responders, “Just coming together to fix the problem, it was really hard.”

In another YouTube video released by Environmental Protection, ERT member Kevin Strohmeier talks about how for some time training was on a ‘trial by fire basis.’

“I cut my teeth on the P&L train derailment,” said Strohmeier. “It was intense.”

Since then however, many things have changed and evolved with the ERT and today it has coordinated with first responders such as firefighters, emergency medical personnel and law



ABOVE: Responders work to clean up environmental waste.

BELOW: The aftermath of the P&L train derailment is shown. Photos by Environmental Protection

enforcement to provide the protection of human health and environmental health. For instance, in 2015, a vehicle crash on the I-75 bridge over the Kentucky River released diesel fuel and other chemicals into the river. The ERT was quickly called and put their training into action. With the aid of the Lexington Fire Department, the ERT managed to put hundreds of feet of containment barriers on the river to contain the fuel and remove it safely from the river.

This response is a perfect example of the importance of cross training with first responders and other state and federal response agencies and has advanced the ERT and made them much more efficient by using all resources available. Response equipment has been stationed strategically around the state so that containment booms can be placated quickly and effectively. Team members recently completed a large training exercise using specialized air monitoring equipment that several agencies have in common and are constantly seeking new ways to collaborate, grow and learn.

For now, the processes just keep getting more intact with the ERT and it starts with getting the situation under control. “Once we have something under control, we do what we can to get it cleaned up,” said Strohmeier. “In any of these instances, the ERT is there to protect people and the environment, coordinate with first responders and to provide the best crisis response possible and they are definitely not there to point fingers. We tend to be known as the white hat folk,” said Strohmeier. “We see mistakes, not intentional releases or problems.”



American Cave Conservation Association

By Mary Jo Harrod
Division of Compliance Assistance

In 2006, the American Cave Conservation Association (ACCA) joined forces with KY EXCEL, Kentucky's environmental leadership program, to host university students willing to dedicate their free time to work on conservation projects in south-central Kentucky. In a partnership with the county solid waste coordinators, ACCA identifies cleanup sites and facilitates the removal of unsightly and dangerous debris and recyclables that threaten the karst habitat and regional drinking water.

"Each Alternative Spring Break (ASB) team brings an average of 12 members to work for a week," says Peggy A. Nims, ACCA education director and volunteer coordinator. "Usually, they work six hours a day for five days. At the federal volunteer hourly rate of \$22.50, this equates to over \$8,000 in in-kind donations. Intangible benefits include a cleaner environment, which is more attractive for possible investment and healthier for residents," said Nims.

City and county agencies supply equipment and dumpsters, while ACCA provides staff to facilitate the projects, supervise the teams and share cave ecology expertise.

Though the area's weather can often limit outside work, a big challenge is identifying viable projects to challenge the students and offer them a rewarding, meaningful experience.

Coordinating team schedules with community agencies and professionals is vital to the success of the project. Good communication and flexibility are also fundamental in meeting everyone's needs.

"Together, ASB teams removed 6,500 pounds of household trash, discarded carpets, furniture, glass, cans, old tires and 3,500 pounds of recyclables from illegal roadside dumps and sinkholes," says Nims. "Also, they spent many hours implement-



ing erosion control measures and several other activities to benefit the community."

Other projects include restoration of habitat, protection of karst ecosystems and water resources in the Upper Green River Watershed and promotion of cave conservation issues. Most of the students have never been to Kentucky or inside a cave and are exposed to different cultural and social issues. They also learn about cave systems, develop leadership skills and team-building, identify community partners who share mutual goals and inspire others to become good stewards.

"The focus of ACCA projects is always stewardship of the land on which we live and the caves beneath our feet," says Nims. "KY EXCEL motivates and challenges us to be good stewards of Kentucky's natural resources and care about the environment."

KY EXCEL New Members

CDP Engineers Inc.—Fayette County
City of Hurstbourne Acres—Jefferson County
C.R. and Karen's Household—Anderson County
GleanKY—Fayette County
Goodmann Household—Franklin County
Kentucky Beef Network—Fayette County

KY EXCEL is Kentucky's voluntary environmental leadership program. Setting a positive example, the program's members have committed to a variety of projects that go beyond the environmental regulations 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://dca.ky.gov/kyexcel/>.



TOP: Students take a moment from work to pause in a cave.

ABOVE: Students pose in a group as they work outside.

Photos courtesy of ACCA.

Jesse Stuart State Nature Preserve

An Appalachian appreciation

By KSNP Staff
Kentucky State Nature Preserves Commission



Life can take you many places, but there is no place like home—especially for one “country boy” named Jesse Stuart. Renowned for his literary works and educational efforts, Stuart, grew up in Greenup County and coined the phrase, “If these United States can be called a body, then Kentucky can be called its heart.” But, Stuart was also an early contributor to the preservation of land that today makes up some of Kentucky’s thousands of acres of nature preserves.

Stuart was born in southern Appalachia in 1907 and traveled the world as both

a writer and educator. During his 77 years, Stuart wrote 500 short stories, 703 sonnets and 60 books. Stuart was a man who stopped plowing to write a sonnet. He often would use a poplar leaf if the mood struck and no paper was handy. He proclaimed in one of his writings that he was “a farmer singing at the plow,” drawing great inspiration from his surroundings and his real life.

Early in life Stuart became an educator, school principal and even a Kentucky poet laureate. He produced popular books such as, “The Thread That Runs So True” and “A

“Kentucky Is My Land.” With his growing success as a writer, he began to slowly purchase the property that included all the hill farms that he and his family had sharecropped for years. He spoke of restoring his beloved land that others had left bruised and broken from poor logging and abusive farming practices, “I’ll fill the washing ruts and care for those acres like they were so many long-starved friends – so much taken away from them by ruthless strangers and nothing returned to them,” Stuart wrote.

In his last years Stuart was approached by timber companies who wanted to buy his land for logging purposes. Stuart, who had been a self-described “fighting man,” and an avid admirer and advocate of his homeland, immediately sought a solution. Through a gift purchase agreement with Land and Water Conservation, the Kentucky State Nature Preserves Commission received 715 acres of Stuart’s land and his legacy lives on today. Situated just outside of Greenup County on the rugged hills of the Cumberland Plateau, the Jesse Stuart State Nature Preserve is bisected by W-Hollow Road and spreads across several broad ridges and encompasses numerous deep ravines on both sides of the narrow, meandering road. Oak and hickory crown the ridge top forests, ravines are shaded by towering tulip poplar and

sycamore trees interspersed with tall pines that Stuart himself planted more than 50 years ago. Old bottomland pastures are turning into young blossoming forests with signs of wildlife such as turkey and deer that are evident in the scratched up leaves under the oak, hickory and persimmon trees. His “long-starved” hills are not only recovering, but prospering.

A hike through the nature preserve presents an opportunity to live his poetry and breathe in firsthand his teaching. Walk the paths that overlook Greenup County, the Ohio and Little Sandy River Valleys. Take in the picturesque views and as in Stuart’s words, “read the landscape, the streams, the air and the skies.” Hike the Shingle Mill Hollow Trail and you are transported into the poem Shingle Mill Symphony, walking, “...a cattle path...that parallels a winding, dwindling stream. On either side there is a rugged hill; to walk this valley is to dream a dream.”

The preserve is open from sunrise to sunset daily. Recently a case of Lyme disease has been reported. Please make sure to take necessary precautions when visiting, such as checking your clothes and body after hiking. Please visit <http://naturepreserves.ky.gov/naturepreserves/Pages/jessestuart.aspx> for more information.



TOP LEFT OPPOSITE PAGE: *A sign welcomes you to the nature preserve.*

ABOVE: *A path trails off into the wilderness. This trail is one of many found at the nature preserve.*

INSET: *Jesse Stuart.* Photo courtesy of the Jesse Stuart Foundation

The Floracliff Bioblitz

By Zeb Weese
Department for Natural Resources

An increasingly popular method of research and identification is combining intensive biological inventories with citizen science and environmental education and it is called a “bioblitz.” In a bioblitz, biologists with expertise in different species or groups lead teams of interested citizens and try to catalogue as many species as they possibly can in one day. This happens in an attempt to gather information on the biodiversity of a natural area by recording what species call it home. Considering the thousands of different kinds of plants and animals found in Kentucky and the variety of habitats they use- from cliffs to creeks to grasslands- finding and identifying them all can be a rather daunting task.

In June, the Floracliff Nature Sanctuary in Fayette County hosted such an event. Over 70 biologists and volunteers met on a rainy Saturday morning and searched the 287-acre private nature preserve to try to locate and identify species not known to inhabit the site. Several Energy and Environment Cabinet agencies participated, including the Kentucky Heritage Land Conservation Fund, the Kentucky State Nature Preserves Commission and the Kentucky Division of Water along with researchers from Eastern Kentucky University and the University of Kentucky. Floracliff manager Beverly James said, “We were impressed with how many showed up to survey the preserve and are very grateful for all the hard work that went into it.”

Since renowned biologist Dr. Mary



Wharton founded Floracliff in 1958, many research projects have taken place on the property. Despite the pre-existing, lengthy species list, 79 new species were recorded at the bioblitz that had never been identified at Floracliff before. This brought the total to 383 identified species. Many of these came from species groups that had not been previously intensively studied. Kentucky Department of Water biologist Ryan Evans attended the event and was quick to comment, “We are lucky to have such a unique place like Floracliff available for study. The bioblitz was a chance for biologists to better understand

Continued on Next Page



ABOVE: Visitors and residents alike enjoy the bioblitz.

BELOW: A salamander makes his way to the function and the species count.

Photos courtesy of Floracliff Nature Sanctuary



Species count for the 2015 Floracliff Bioblitz:

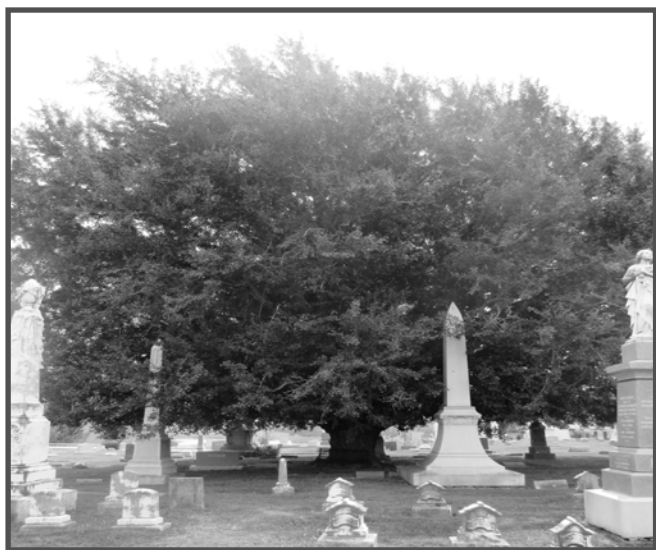
Aquatic invertebrates: 71 species, including 21 new species recorded
Terrestrial invertebrates: 132 species, including 39 new species recorded
Fungi: 1 new species recorded
Birds: 35 species
Reptiles and amphibians: 10 species
Fish: 23 species, including 12 new species recorded
Plants: 109 species, including 6 new species recorded
Mammals: 2 species

this unusual area of the Bluegrass region. We certainly didn't expect to discover so many new aquatic invertebrate records," said Evans. "I'm glad Mary Wharton had the foresight years ago to protect this special place."

Floracliff is a tax exempt, 501(c)3 private operating foundation that focuses on conservation, education and research of the sanctuary's flora and fauna. Per Dr. Wharton's wishes, all visitation to Floracliff is limited to research, guided hikes and educational programs for small groups. This provides a unique balance between protection of the sanctuary and promotion of the region's biodiversity and natural history. In the 1970s and 1980s, Dr. Wharton donated three conservation easements to the Lexington Fayette Urban County Government, ensuring protection from residential and commercial development. In 1995, Floracliff was dedicated as a Kentucky State Nature Preserve, becoming the first and only State Nature Preserve in Fayette County. Floracliff recently applied for matching funds from the Kentucky Heritage Land Conservation Fund (KHLCHF) in hopes to acquire additional acreage along the Kentucky River.

KHLCHF is a program of the Kentucky Department for Natural Resources that helps fund the acquisition of natural areas by local and state government agencies as well as nonprofit land trust organizations. For more information on the KHLCHF please go to <http://heritage-land.ky.gov> or contact Zeb Weese at zeb.weese@ky.gov.

A historical gem in New Castle



The ginkgo stands in New Castle Cemetery.

Photo courtesy of Lindon Powell

Sometimes you come across a tree that seems to speak to you. It might be its location, size, beauty or something in the air, but when you see that tree, in that moment, you just think-Wow! On a recent drive through Henry County, a ginkgo produced just such a "wow" moment.

The ginkgo tree is one of the oldest living species on earth. It has flourished almost unchanged for 150 million years and during prehistoric times it lived in many parts of the world. However, during the last ice age, ginkgoes nearly became extinct, and survived only in China and other parts of Asia.

During the 1700s and 1800s, wealthy landowners enthusiastically planted everything they could get hold of on their private estates. Henry Clay was one of the first to bring ginkgoes to his estate, Ashland, from his frequent trips to Washington, D.C. where these ginkgoes became the first ever recorded in Kentucky.

Sometime in the 1860s another prosperous gentleman, Ben B. Gray, decided to plant a ginkgo in the New Castle cemetery in Henry County. Gray was a Henry County magistrate and proprietor of the Gray House Hotel and Restaurant. He was also Martha Gray Powell's great-grandfather. Powell grew up hearing family

By Jennifer L. Turner
Division of Forestry

stories of the old ginkgo tree. The ginkgo sits in the middle of the Gray/Powell cemetery plot in the oldest section of the New Castle cemetery. Although not a very tall tree, just 57 feet, the tree is remarkable because of its age and girth. It is 194 inches in circumference.

Powell would sit on the iron bench under the tree and admire its fan shaped leaves. She took many pictures of the tree in the fall when the leaves would turn a brilliant gold. The ginkgo is different from most deciduous trees in that its leaves fall all at once in the autumn instead of over several weeks.

Lindon Powell, son of Martha Powell shared a poem his mother wrote about their tree.

"A long time ago; I don't know when,
A man named Gray, his first name Ben,
Planted a tree in the New Castle Cemetery.
I was taught it a valuable tree
Because it was imported from across the sea.
Each leaf is a fan, in the fall it turns to gold;
Then it is a sight to behold.
It is called a ginkgo tree.
We have it barely trimmed, as it needs to be.
Poems are made by fools like me,
But only God can make a tree."

Powell said that his mother admitted that the poem was her first and last effort at poetry but that its inspiration was always a source of pride to her. Martha Powell was laid to rest on June 14, 2005. She joined her husband and family under the ginkgo she so admired. Lindon Powell smiles as he talks of his mother still admiring the tree her great-grandfather planted so long ago.

Today, that ginkgo remains as a sentinel standing watch over those laid to rest there. Passerbys continue to admire this large tree for its beauty and stature and it is most likely causing some 'wow' moments for them too.

Energy tour offers an eye opening experience for Kentucky educators

By Roberta Burnes
Division for Air Quality

Our daily lives are powered by energy, yet we often take it for granted. Somewhere in the back of your mind, you know the light switch is connected to a power source, but how many of us actually get to trace the energy path back to that source?

About two dozen educators got to do just that in June by joining a five day energy tour sponsored by the Kentucky Department for Energy Development and Independence and hosted by the Kentucky National Energy Education Development (NEED) Project. NEED is a non-profit educational organization that provides energy education resources, training and support for teachers across the U.S. and internationally.

The whirlwind tour included stops at hydro, coal-fired and natural gas



power stations, a natural gas refinery and coal mining and reclamation sites in eastern Kentucky. Educators also visited a Tennessee wind farm, nuclear power plant and a pumped storage facility.

Since 2002, Kentucky NEED's annual energy tour has helped educators understand the needs and impacts of their personal choices as energy consumers. Along the way, teachers meet and learn from professionals about career opportunities for their students in the energy industry.

"Since the beginning, our goal for the energy tour has been to provide Kentucky educators the opportunity to see energy

in action," said Karen Reagor, Kentucky NEED director. "We also explore resources not currently in Kentucky's energy mix, such as nuclear and wind."

Throughout the week, Reagor uses the travel time on the tour bus to provide teachers with nationally-recognized energy education resources for their classrooms. Classroom kits, teacher workshops, student recognition and lesson plans correlated to state standards are just some of the resources NEED provides free of charge.

While each year's tour has the same basic focus, Reagor aims to tell a different facet of Kentucky's energy story with three different itineraries:

- The East Kentucky-Tennessee tour features wind and nuclear energy.
- The Central Kentucky tour has a special focus on energy efficiency and conservation.
- The Western Kentucky tour features renewable energy in transportation as well as a deep mine tour.

2015's tour featured several stops in Kentucky, including an extensive tour of the Wolf Creek hydroelectric generating facility in Russell County. Teachers traveled deep inside the plant, under the 20-foot diameter pipes that feed water through the dam's four electric generating turbines.

From mining to reclamation, the tour also examined the many facets of coal. Educators visited East Kentucky Power Company's Cooper Power Station, where



TOP: Educators pose in front of wind turbines.

Photo by Joshua Benjamin Queener.

ABOVE: Part of the group peers out the windows during the tour.

Photo by Tim Webb Photography.

they learned how pollutants are scrubbed before they leave the stack. A hard-hat trip to an active surface coal mine in Perry County allowed participants to see where the majority of Kentucky's energy comes from. While there, members visited an experimental reclamation site that surprised everyone with its diversity of native plants, insects and birds. "I've seen only two monarch butterflies this year," one participant remarked, "and both of them were on that reclaimed surface mine site."

High school science teacher Scott Diamond also noted a change in perspective as a result of visiting the reclamation site. "The method of planting trees at the reclamation site shocked me," said Diamond. Instead of strongly compacting the soil during the reclamation process, bare-root native trees had been planted right in the rugged terrain of mining rubble. "The idea that minimizing intervention would yield vastly improved recovery of forests was a real surprise," said Diamond. "The extent of recovery changed my mind about the feasibility of this kind of reclamation."

Kentucky's current energy mix does not include nuclear or wind, but that may change in the future. Teachers traveled to Tennessee to see these energy sources in action, beginning with a trip to the Buffalo Mountain Wind Farm, operated by the Tennessee Valley Authority.

As participants stood at the base of an active wind turbine, they learned how the 18-turbine wind farm provides enough energy to power nearly 3,400 homes annually. "I was amazed at how quiet the turbine was, even standing right next to it," said Michael Kennedy, assistant director with the Department for Energy Development and Independence.

The Tennessee portion of the tour included visits to two other TVA facilities: the Sequoyah Nuclear Plant and the Raccoon Mountain pumped storage hydropower facility.

Reading about energy is one thing, but it becomes much more real when you feel the heat radiating from the steam turbines at a nuclear power plant, or the hum of a 225-megawatt generator at a coal-fired power plant. "The Kentucky Energy Tour provided an excellent opportunity for educators to get out in the field and experience energy production facilities in person," said Kim Brewer, principal and science teacher at St. Philip School in Campbell County. "All of our experiences will enhance our teaching about energy in the classroom."

For more information on Kentucky NEED, visit <http://www.need.org/kentucky> or contact Karen Reagor at kreagor@need.org.



TOP: Tour members at the Cooper Power Plant.
MIDDLE: Roberta Burnes talks with Sean King.
ABOVE: Members stand on the turbine deck.

Photos by Tim Webb Photography.

Case studies tell stories and so much more

Mary Jo Harrod
Division of Compliance Assistance

Would you like to read stories about environmental leadership in action? How about learning what help is available when small Kentucky businesses need help understanding their environmental obligations? Do you know what can be done with a contaminated property to get it into productive reuse? Take a look at the case studies on the DCA website in the Resources section under Case Studies (<http://dca.ky.gov/Pages/ResourceDocuments.aspx>) for inspiring stories.

The KY EXCEL case studies tell the stories of members of the Commonwealth's environmental leadership program and how they are making a difference in Kentucky's environment. One KY EXCEL member, the Blue Grass Army Depot (BGAD), in Richmond, is a U.S. Army storage facility for conventional munitions and chemical weapons. The 14,596-acre site is mostly open fields and wooded areas where BGAD is restoring native warm season grasslands for species of grassland birds and mammals that are in decline across the country, such as the bobwhite quail.

The KY NEED Project, also a KY EXCEL member, is the Kentucky branch of the National Energy Education Development Project (NEED), a nonprofit education association providing energy education workshops and curriculum for K-12 teachers and students across the Commonwealth. KY NEED provides one-day energy workshops for teachers, training/support for student energy teams, energy tours for educators and sponsorships for teachers to attend the national conference.

The Young Manufacturing Company, in Beaver Dam, is a family-owned and operated woodworking company that began as a sawmill in 1858. Today, the company, which is located on 80 acres, employs 160 people and manufactures a full line of stair treads, risers and related components, as well as exterior door sills and frames. As the company grew and new environmental regulations became effective, Jeff Young, the plant engineer, called the Environmental Compliance Assistance Program, a free program in DCA, for help. DCA staff members were able to assist Young and help the company stay in compliance.

Read about Crab Orchard, a small city in Lincoln County and once the site of the Lincoln Scrap Yard, which had been an automotive scrap yard for several years. The business closed, and the site became littered with trash and overgrown with weeds. By 2006, the dust and water from the abandoned, contaminated site were a threat to neighboring properties and citizens. This brownfield was cleaned and transformed into a beautiful park that is used on a daily basis by the people of Crab Orchard. What was once a liability to Crab Orchard is now an asset and a source of pride to the citizens.

These are just a few of the many success stories you'll find on the DCA website. Check us out!



LEFT: A sign at BGAD shows visitors the Native Prairie. Photo by DCA.

BELOW: Students at KEEP get hands on with a demonstration by examining a Kill-A-Watt meter.



MIDDLE: A sign outside of Young Manufacturing. Photo courtesy of Young Manufacturing.

ABOVE: A building stands in disrepair (left) and a playground (right) shows the transformation of the area. Photo courtesy of DCA

Teachers Explore- air quality education

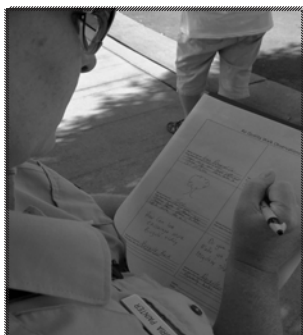
What can I do to improve air quality in my community? That is the question teachers and non-formal educators explored at an all-day workshop in July, held at the Wolf Creek National Fish Hatchery in Jamestown,

Kentucky. The workshop was led by Kentucky Division for Air Quality education specialist Roberta Burnes and Kentucky Environmental Education Council Executive Director Elizabeth Schmitz.

Educators learned about the connections between energy and air quality, designed and built model air pollution catchers and practiced how to teach students to interpret scientific data. Participants also learned how to align each activity with the recently-adopted Kentucky Core Academic Standards for science.



UPPER LEFT: Moria Painter records observations during an air quality walk. **LOWER LEFT:** Teachers discuss air quality connections of different human activities. **ABOVE:** Bryson Scruggs explores the properties of air during the workshop. Photos courtesy of EEC.



ABOVE: Firefighters survey a fire. Photo Josh Birnbaum courtesy of National Association of State Foresters.

U.S. fires call Kentuckians to action

Continued from Page 6

Even Governor Beshear got in his thanks on his Twitter feed, "Thanks to all the Kentucky #Firefighters who have travelled to #Alaska to help battle #wildfires. We honor your service. #Staysafe #KentuckyDivisionofForestry."

Kentucky's help and involvement didn't end there, however; in August

Kentucky firefighters were dispatched to California, North Carolina and even Washington. These men and women took part in battling some of the 100 large blazes as this year has been one the most active due to high temperatures and drought.

Kentucky firefighters will soon be unable to help other states as Kentucky will hit its peak fire season from Oct. 1-Dec. 15 and will require them to be on hand and in state.

SMALLER COMMUNITIES THINK BIGGER SAVINGS

Continued from Page 4

Department, Senior and Community Arts Center and the city's Micro Park Enterprise facility also received energy upgrades in the process.

The most notable improvements for Greensburg however, were the city-wide water meter replacement component of the project. With the ESPC, 1,272 new water meters with mobile automated meter reading (AMR) technology were installed and 300 outdated meter setters were replaced. The newly installed meters allow readings to be taken automatically and recorded by a data collector. As the reader drives by in the utilities vehicle, the meter will transfer data to the collector. This has greatly cut down on the amount of time it takes the city to read and re-read meters, not to mention the new AMR

meters provide better leak detection, improved billing accuracy and improved customer service.

The city of Greensburg is not finished tackling energy efficiency as a community for the time being. The mayor and city council have now budgeted for a revolving loan program using on-bill financing to help both owners and renters make needed repairs and upgrades to their homes in targeted neighborhoods where at least 80 percent of the proceeds must be spent towards energy efficiency efforts. "This is only the beginning," said Cheatham.

For more information about energy efficiency projects for local governments, please contact Harry Carver at harry.carver@ky.gov or the DLG at (502) 573-3382.

The 2015 Environmental Excellence Awards



KY EXCEL Champion Award: Central Motor Wheel of America. Left to right are Secretary Len Peters, Jeff McGuire, Russ Blanton, Bruce Allison and Commissioner Bruce Scott.



Kentucky Heritage Land Conservation Fund Stewardship Award: Kenton County Conservation District. Left to right: Zeb Weese, John Stork, Bing Dickerson, Marc Hult and Horace Brown.



Resource Caretaker Award: American Cave Conservation Association. Left to right: Secretary Len Peters, Peggy Nims, David Foster and Commissioner Bruce Scott.



Environmental Pacesetter Award for a Medium to Large Business: Leggett & Platt Inc., Branch 0002. Left to right: Secretary Len Peters, Debbie Means, Herbie Jones and Commissioner Bruce Scott.



Environmental Pacesetter Award for an Individual/Organization: GleanKY. Left to right: Secretary Len Peters, Stephanie Wooten and Commissioner Bruce Scott.



Energy Leadership Award: Ron Willhite. Left to right: Secretary Len Peters, Ron Willhite and Commissioner John Davies.



Environmental Pacesetter Award for a Small Business: YKK (U.S.A.) Inc. Left to right: Secretary Len Peters, Greg Pass and Commissioner Bruce Scott.



Energy Leadership Award: Greg Higdon. Left to right: Secretary Len Peters, Greg Higdon and Commissioner John Davies. A special thank you for all photos to Creative Services.

Get involved in clean water

By Chad Von Gruenigen

Water is a necessity of life and having clean water is of the utmost importance, especially to basin coordinators who care about the water you swim in, fish in and even drink. A basin coordinator's job is to keep tabs on the health of the state's water resources and to help communities protect and improve their water quality so that all Kentuckians can have access to clean water. They do this by going out into the state and talking to people, finding out what their needs are and what areas have issues. Basin coordinators then try to find long term solutions ranging from education to projects designed to help remove pollution and improve water conditions.

When you think of pollution you may think of factories, but you may not know that the majority of water pollution washes off the land in the form of runoff from many different sources into our rivers and streams. This ranges from trash to chemicals and bacteria. Basin coordinators work to reduce runoff pollution, improve water quality and improve your quality of life by keeping our water clean and safe.

Runoff pollution is the No. 1 source of water pollution in Kentucky. Examples of runoff pollution are:

- Dirt and sediment
- Fertilizer
- Chemicals
- Animal waste
- Failing septic and straight pipes
- Oil and greases

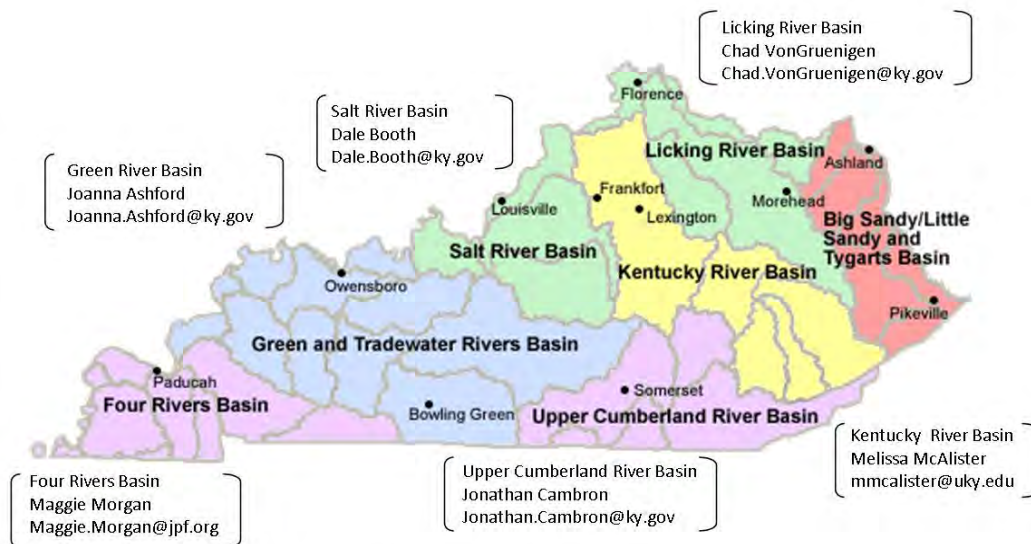


Another key component of basin coordination is engaging people and communities across the state. By engaging existing nonprofit groups, state agencies, local governments and universities, they incorporate many of the concerns and needs of the people who use water. If these groups do not exist and a need is identified, basin coordinators generate interest from the public and form partnerships to make the needed improvements. "I'm always looking for partnerships," said water basin coordinator Jonathan Cambron. "It's hard to find someone who doesn't care about their water in one way or another."

To be successful basin coordinators provide technical assistance to address water pollution issues and facilitate projects to improve the identified issues. Equally as important, they use education and outreach to give people the ability to make their own informed decisions. Basin coordinators also look for connections between groups and funding sources to get the job done.

"We have projects happening all over our great state, possibly in your backyard," said Cambron. "We address issues ranging from urban stormwater to agricultural concerns." If you would like to know more about basin coordinators and the Kentucky Division of Water, or to get involved, please contact your basin coordinator at (502)564-3410.

Kentucky Basin Coordinators



Or call (502) 564-3410

TOP RIGHT: Joanna Ashford speaks with a farmer about water issues he is experiencing. **ABOVE:** A map of Kentucky demonstrates the basin coordinators' areas. Photos provided by the KDOW.

The 2015 Outstanding Forest Steward of the Year

By Jennifer Turner
Division of Forestry



TOP: Davis stands proudly next to one of the entrances to his tree farm.
Photo courtesy of Herbert Davis.

Herbert Davis, Sr. of Casey County was chosen as the 2015 Outstanding Forest Steward of the Year by the Kentucky Division of Forestry Director Leah MacSwords. Davis was presented an award during the Kentucky Association of Conservation Districts' annual conference in July. MacSwords said, "It is a pleasure to work with landowners like Mr. Davis. He is a leader in conservation and forest management."

Every year the Division of Forestry honors an outstanding individual or group of individuals as Outstanding Forest Steward of the Year. This award recognizes the forestland owner who has promoted the forest stewardship program, understands the importance of Kentucky's forest resources, and works to sustainably manage their forest.

There are many reasons that Davis won the 2015 Kentucky Forest Steward of the Year award. He has planted more than 75,000 trees for erosion control, forest regeneration and wildlife habitat to only name a few. "The ultimate goal for most of the tree plantings is that one day they will be stands of quality hardwood timber

and valuable wildlife habitat," said Davis. Davis has been working to improve his woodlands for 40 years. While multiple tracts have been purchased over several years, the tract purchased in 1973 was the first to be managed. Davis currently owns five tracts of land in Casey and Taylor counties totaling 748 acres of woodlands and 955 acres.

Kentucky Forester Amy Carmickle-Rabich nominated Davis stating, "Mr. Davis is more interested and involved in the proper management of his property than any other landowner I have worked with. He has been actively managing his woodlands for more than 40 years and over the last 20 years has restored native grasses, wildflowers and trees to the majority of his agricultural land," said Carmickle-Rabich. "Mr. Davis regularly seeks out the advice of natural resource professionals and more

importantly, takes their advice."

If you ask Davis what makes him the happiest about his land, he will tell you it's seeing that his children and grandchildren love the outdoors. When Davis started timber stand improvement on his property in 1975, he enlisted the help of his teenage son. He believes the work they did together during that time was the spark that ignited his son's interest in conservation, ultimately leading him to a career in natural resources and in Davis's words, "that's a legacy to be proud of."

To be eligible to receive the Outstanding Forest Steward Award, a landowner must have been a certified Kentucky Forest Steward for a period of 3 years prior to nomination, be actively implementing his or her forest stewardship plan and be nominated for the award by a natural resource professional.

The 2015 Leopold Conservation Winner

*By Johnna McHugh
Division of Conservation*

The beliefs and values of the noted author and conservationist Aldo Leopold are very much still alive today and that stands true with Charles Williams of Munfordville, who was recently recognized as the 2015 winner of the Leopold Conservation Award in Bowling Green, Kentucky.

Williams received the \$10,000 Leopold Conservation Award and a crystal depicting Aldo Leopold, at the Kentucky Association of Conservation Districts annual convention, July 21 from The Sand County Foundation. "With regard to conservation, I know of no one who more embodies commitment to a land ethic than Charlie," said Dr. Todd Willian, professor of agriculture at Western Kentucky University. "His involvement with nature conservancy will one day undoubtedly be his most lasting legacy to his community and the Commonwealth," Williams continued.

Williams has been working in forest management since his grandfather gave him 90 acres of woodland when he was 12 years old. Since then he has worked hard to restore his land, cleaning the debris left by previous owners, replacing tobacco fields with warm season grasses to provide new habitats for wildlife. When harvesting trees, Williams is careful to only harvest the

dying, fire-damaged or poor quality trees, in an approach called "bottom-grading." This leaves the healthy trees more room and resources. To date Williams has 1,100 acres on which he has planted more than 75,000 trees.

Williams also works hard to pass along his knowledge about proper woodland conservation to others. He regularly hosts many forestry field days in which children and adults visit the farm to learn about his tried and true techniques. Some of these include teaching the proper way to identify various plants and how to also plant and prune trees.

Williams conservation ethic is rooted in the strong belief that people have the responsibility to have an ethical relationship with the land they own and manage- just as Aldo Leopold did. "At this farm, you have to consider that you are a part of a much larger community," Williams noted. Community outlook seems to have a heavy hand in Aldo, William's and hopefully the students both have inspired and continue to inspire.



LEFT: From left to right, Emily Ragan (niece), Charles Williams, Liza Ragan (great-niece), Sylvia Jaegers (sister) and Maryglenn Warnock (niece).

BELOW: Williams accepts his award in July.

Photos courtesy of David Hargis.



Two other finalists for 2015 that will also be included in the selection for this award next year were:

The Bowling family of The Old Homeplace Farm, in Oneida, who use best management conservation techniques as they work a cow and calf operation that has increased livestock diversity as a natural way to solve weed issues on their farm.

The Pelle family of Tallow Creek Farm, in Bradfordsville, who work with American Chestnut trees to enhance their forest crop, wildlife habitat and the growth of forest floor vegetation.



Energy and Environment Cabinet
Office of Communications and Public Outreach
5th Floor, Capital Plaza Tower
Frankfort, KY 40601

Address Service Requested

Presorted Standard
U.S. Postage
PAID
Permit #1
Lexington, KY

Seedling nurseries: growing trees for healthy and productive forests

An American plum can be planted from seed and is relatively easy to transplant. They need to be planted in well-drained soil. They are often used as a windbreak.

Just the Facts: American plum or American wild plum (Prunus americana)

Growth: American plum is a deciduous large shrub or small tree with a broad crown, reaching heights up to 15 feet. Fruits are red to yellow, almost globular edible plums about 1 inch in diameter. Flowers are white, five petaled, about 1-inch across, and borne singly or in clusters at the juncture of a stem and leaf. Leaves are alternate, broadly oval in shape with a sharply tapering tip, and sharply, often doubly toothed edges; they are generally 2 to 4-inches long on slender stalks, dark green above, pale and smooth below. The plant's numerous stems are grayish and become scaly with age; its branches are more or less spiny with sharptipped twigs. The roots of American plum are shallow, widely spreading, and readily sprouting.

Range: Widely distributed over the eastern two thirds of central North America, American plum grows in prairies, woodlands, pastures, and along roadsides and riverbanks. The shrub is winter-hardy, but intolerant of shade and drought; it requires the equivalent of 22 to 25 inches of precipitation.

Wildlife Uses: American plum is highly important as wildlife cover and food. The thorny, suckering growth, when protected, forms a thicket valuable for bird nesting and bedding. Twigs and foliage provide a highly preferred browse for whitetail

and mule deer.

Tree Trivia: American plum was and still is, used as a source of food and medicine by Native Americans in the Midwest and West. The thorny growth and suckering characteristics should be considered before planting this species near a recreation area. It can be used for screening and natural barriers. The fruit is used widely for making jams and jellies.

Seedlings are available from early 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. 