SPRING 2011

THE magazine

UNIVERSITY OF KENTUCKY COLLEGE OF AGRICULTURE

Ecologist with a Camera

HELP IN THE HILLS | A Bridge to the East

from the dean

FUELED BY LOCAL INITIATIVE

In Eastern Kentucky, the College has been on the ground and fueled by local initiative since the 1920s when E.O. Robinson donated the sites for Robinson Forest and the Quicksand Station in Breathitt County. Early work in the region focused on forestry, mountain agriculture, home economics, and of course, building the county extension system.

As Eastern Kentucky evolved, our programs adapted. At least 30 years ago, work began on techniques to reforest strip-mined lands that typically only support grassland. By 2005, a regional coalition, the Appalachian Regional Reforestation Initiative (ARRI), was sufficiently optimistic to set a goal of re-establishing 38 million trees on reclaimed grassland. In 2009, the United Nations recognized this project as a global model of reforestation success.

In 2004 Pike County extension leaders, seeking innovative ways to support community development, came to us with a proposal to create what was then the nation's only fine arts county agent position. Recently, five Kentucky fine arts agents met to celebrate their success and plan for continued growth. Four of the five are in Eastern Kentucky counties.

Later in the decade, we overhauled our community and economic development operations to better respond to the challenges of hometowns facing tough times. Now our new initiative, Community and Economic Development Initiative of Kentucky (CEDIK), is working to grow local economies all over Eastern Kentucky.

Coming back to where it all started, at Robinson Forest and the Quicksand Station, we have restructured these to form the Robinson Center for Appalachian Resource Sustainability (RCARS). Read more about RCARS in this issue. Operational efficiency was one factor pressing for this change, but much more important in the long run is increasing our impact in the region. We want the new Robinson Center to become a powerful symbol of that commitment to the people of Eastern Kentucky.

M. Scott Smith
Dean, College of Agriculture

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AGRICULTURAL COMMUNICATIONS SERVICES

DIRECTOR:
Laura Skillman

EDITOR:
Carol L. Spence

DESIGNER:
Linda Millercox

WRITERS:
Jeff Franklin
Martha Jackson
Aimee Nielson
Katie Pratt
Carol L. Spence

PHOTOGRAPHERS:
Matt Barton
Stephen Patton

ADDITIONAL CREDIT:
Page 2, Dennis Duross; Page 3, Argentine photo courtesy of Chad Lee; Page 4, student photos by Robert Demattina, beetle photo by Charles Fox; Page 11, wildflower photo, Page 12, Cumberland River, Kentucky lady slipper and shooting star, and Page 13, Dog Slaughter Falls and iris/trillium by Tom Barnes; Page 21 and Page 23, by Katie Pratt; Front and Back Cover photos by Tom Barnes; ©ThinkStockPhotos.com; ©PhotosToGo.com

SEND COMMENTS AND LETTERS TO:
The Ag Magazine Editor
Agricultural Communications
131 Scovell Hall
University of Kentucky
Lexington, Kentucky 40546-0064
E-mail: magazine@uky.edu

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Taylor Clem, LA student

As a doctoral student, Ryan Hargrove researched methods for enhancing students' creative thinking. The key to creativity, he realized, is metacognition—building awareness of and understanding one's personal thought process.

Hargrove, now an assistant professor in the College of Agriculture's Department of Landscape Architecture, began offering a course called "Living on the Right Side of the Brain." It was so successful, it is now offered in the University's general education curriculum, which opens the course to students in all disciplines.

"The skills you learn aren't design-specific," he said. "Creativity is something we all need. Coming up with more innovative solutions, having a broader perspective—we all need that, no matter what we do."

Now there's support for 'homemade'

MANY small-scale producers, enthused by the burgeoning local food movement and Kentucky Proud's success, consider producing and selling value-added products. But without the capability for product testing that large processors routinely carry out in their own labs, they might not know if Grandma's spaghetti sauce has a chance of making it in the mass consumer market.

But now producers have help available, through the College of Agriculture's new Food Systems Innovation Center. Building on the many capabilities that exist in the College in terms of marketing and technical product development services, the center can assess product safety, provide accurate nutritional analyses and labeling information, conduct taste tests using trained sensory panelists, and analyze shelf life. UK agricultural economists conduct consumer, demand, economic impact, and feasibility studies.

Kentucky Agricultural Development Board funds helped to get the Food Systems Innovation Center off the ground.

COLLECTIVE STRENGTH

IN ARGENTINA, where there are no government subsidies, farming is a risky business.

To reduce their risks, producers of varying ages, expertise, backgrounds, and philosophies gather in farmer-driven peer groups known as Regional Consortiums of Agricultural Experimentation, or CREA. The eight to 12 members compare production notes, share research, and critique each member's operation. They also hire an advisor who visits each farmer's operation and provides personalized recommendations.

"The biggest benefit is members share knowledge, technology, and business practices with each other," said Chad Lee, extension grain crops specialist in the College of Agriculture. "They become much more competitive as a group, because each member knows the prices the others are getting for things like fertilizer, pesticides, and seeds."

Lee knows this, because he spent four months in Argentina learning about the country's agricultural industry, how farmers survive and remain competitive without subsidies, and if and how these practices could be applied to Kentucky grain operations to make them more competitive and productive.

Chad Lee (left) and Lucas Borras discuss Borras' experiments in kernel fill on corn. Borras is an adjunct professor of crop production at the National University of Rosario in Argentina.

His work was funded by the U.S. Department of Agriculture's Agriculture and Food Research Initiative.

Although Kentucky and Argentina producers face very different economic scenarios, Lee believes the concept of a farmer-driven peer group can work here.

Kentucky grain farmers Randy Mann of Simpson County and Sam Hancock of Fulton County, with funding from the Kentucky Soybean Board, spent a week with Lee in Argentina learning about Argentinean soybean production. Both agree that some aspects of CREA could work here.

"Making decisions based on collective input and ideas from producers in the group, rather than a producer making a decision based only on individual experience, could be an advantage in some cases," Hancock said.

Lee plans to establish a group of Kentucky grain producers who share technical information about their operations. Each member would engage in one research project and share their results with the group.

Program instructor Kelly Taylor (top right, bottom left) teaches students from Lexington's Universal Academy how to collect stream data in the West Hickman watershed.

Class is Out(side)

WADING IN A CHILLY CREEK bed on a cool morning may not sound like science, but in this case it is. The UK College of Agriculture and the Tracy Farmer Institute for Sustainability and the Environment are giving middle and high school students the opportunity to learn outside the classroom through community-based science programs.

Brian Radcliffe, a program instructor for the Farmer Institute, said they work with Kentucky schools on water projects that focus on water quality, soil quality, invasive plants, or any topic relevant to the interest and needs of the students and teachers.

By providing field trips, professional development for teachers, and opportunities for the students to attend conferences to present their information, the institute connects students to science in a meaningful way.

Sixth-grade students from Lexington's Universal Academy participated in the program last fall. They braved the brisk water of the West Hickman watershed to test the stream's water quality. Radcliffe showed the students how to collect data and what to do with it.

"We talk about water sheds, rivers, and streams in Kentucky," he said. "We test the water, use GPS to pinpoint data collection sites and then map the data using GIS. It's a year-long project."

The program, in which 15 Kentucky schools from 9 districts take part, is funded through a National Science Foundation Innovative Technology Experiences for Students and Teachers grant.

THE 'DECIDING' FACTOR

The cowpea weevil female will often resist mating advances from males if she's well fed.

IN CHARLES FOX's laboratory in the Department of Entomology, researchers can turn down a female beetle's libido just by giving her something sweet. Oh, she'll mate the first time, but after a little sugar water, her "thoughts" turn to other beetle matters such as egg laying.

Fox's experiments with *Callosobruchus maculates*, commonly known as the cowpea weevil (though it's not a weevil), are a window into the way individuals interact with their environment. From the smallest insect to the largest mammal, species evolve behaviors that help them reproduce, obtain food, and avoid predators.

"Organisms are going to respond to changes in the environment (evolve) in ways that improve survival and reproduction," Fox said. He recently published, with UK biology professor David Westneat, a book on the subject—*Evolutionary Behavioral Ecology*.

Fox is interested in the types of decisions organisms make when mating and how those decisions differ between males and females.

Adult cowpea weevils don't eat much—a little nectar, some fungi. The female beetle gets nourishment from the male's nuptial gift, which is a large volume of fluids transferred during mating, giving her the resources to live longer and produce more eggs. Fox asks questions such as, "Do starving females solicit mates to get resources from them?"

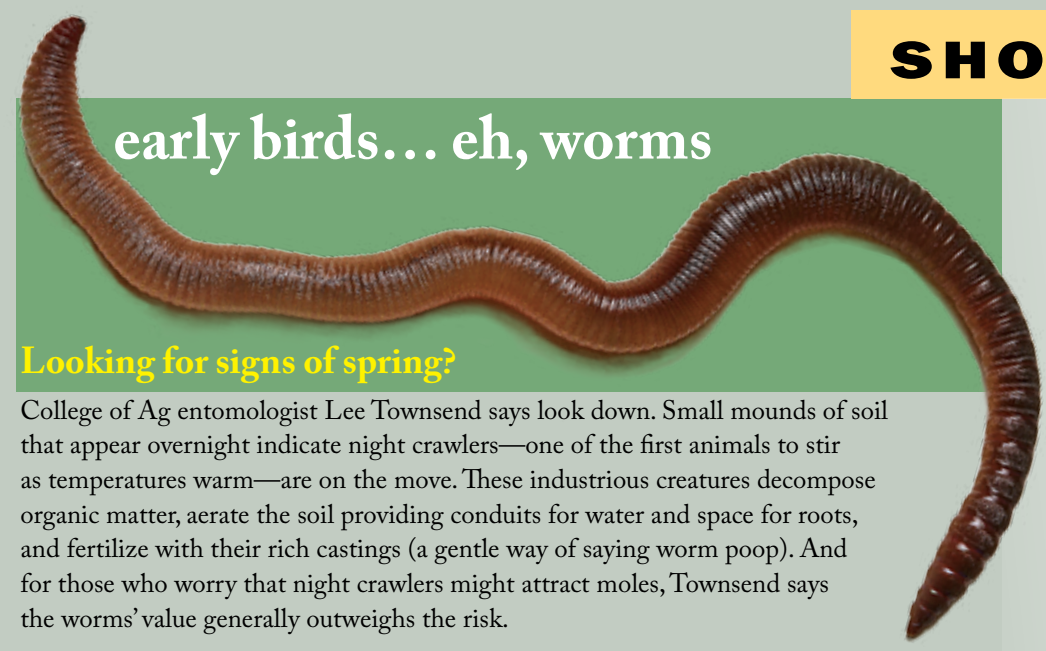
He discovered that, if fed, females are very resistant to mating. For good reason. Males have spines on their genitalia, which damage the female. She will always mate with the first male she encounters—she needs sperm to fertilize her eggs—but she becomes more selective in later matings, unless she is hungry.

"It has to do with sexual conflict. There's a lot of selection for males to mate a lot but for females to mate less, leading to conflict between the sexes over how often to mate." he said.

Which all begs the question: as the environment changes, affecting male-female interactions, how will beetle mating behavior evolve?

Fox is on the case.

early birds… eh, worms



Looking for signs of spring?

College of Ag entomologist Lee Townsend says look down. Small mounds of soil that appear overnight indicate night crawlers—one of the first animals to stir as temperatures warm—are on the move. These industrious creatures decompose organic matter, aerate the soil providing conduits for water and space for roots, and fertilize with their rich castings (a gentle way of saying worm poop). And for those who worry that night crawlers might attract moles, Townsend says the worms' value generally outweighs the risk.

We're Tweeting and Flickring and so much more.

UKAg has plugged into the social networking circuit to connect with alumni and constituents. The UKAg Social Media Hub, **http://www2.ca.uky.edu/social/**, aggregates all the latest official College content from popular social media sites, including Twitter, Facebook, YouTube, Flickr, LinkedIn, iTunes U, and Delicious.

It ain't easy being green

Several UKAg departments cooperated in evaluating 20 varieties of green beans during a recent variety trial at the UK Horticultural Research Farm—the first in about 10 years. Pam Sigler in the School of Human Environmental Sciences was especially interested in the beans' taste, texture, and visual appeal. All things considered, panelists participating in Sigler's taste test indicated they were most likely to purchase the Tema variety, with Brio, Hickock, and Savannah varieties not far behind. UK horticulture specialist John Strang will use data from the variety trials to make recommendations for commercial growers.

jobs

Entrepreneurs working with volunteer coaches from Kentucky Entrepreneurial Coaches Institute's first two classes have created more than 240 new jobs in northeastern Kentucky and contributed $9 million to the state's economy. KECI, currently training entrepreneurial leaders, advocates, and coaches in its fourth class, is now in 41 tobacco-dependent counties in Eastern and Southern Kentucky.

Say Cheese

Nothing adds value to milk like cheese. At the four-day Kentucky Cheesemaking School—offered twice last year by the College, Kentucky State University, and industry partners—participants learned cheese makers can expect returns of about $1 per ounce at local markets, although the initial outlay for equipment can be quite high. Specialty cheeses like goat and sheep cheeses can be especially profitable.

by Aimee Nielson

Help in

In the midst *of the beautiful hills and hollows of Eastern Kentucky, enterprising individuals, with the College of Agriculture's support, are succeeding in several business ventures related to horticulture, livestock, forestry, and more.*

Carter Fleming, his wife Caroline, and brother Starling have been long time participants in the Eastern Kentucky Heifer Development Program.

CARY BRIGGS SOUGHT GUIDANCE in wrapping his unique technology project in Kentucky hardwood. Farmers Keith and Monica Hall turned to sweet potatoes to replace lost tobacco income. Cattleman Starling Fleming takes part in a unique heifer development program.

The UK College of Agriculture's Robinson Center for Appalachian Resource Sustainability (RCARS) is motivating them, and others like them, to be a part of something new and exciting; something that could spur personal and economic growth in a region hit hard by tough times.

RCARS is a hub of knowledge, resources, and expertise to empower the people of Eastern Kentucky. Its director is David Ditsch.

"I'll never be an Eastern Kentucky native," Ditsch said, "but my wife and I decided to raise our family and spend our professional careers in the mountains hoping to make a difference here."

Ditsch said he's learned over the past 18 years the region's needs are overwhelming, but its potential is limitless.

"I want Eastern Kentucky entrepreneurs with a dream or an idea to see this as a place where they can tap into many resources and find strong leadership supported by relevant research and educational programs that fit Appalachian culture."

— DAVID DITSCH

"The Robinson Center won't 'save' the region, but it can make a very positive difference in the lives of motivated adults and youths," he said. "I want Eastern Kentucky entrepreneurs with a dream or an idea to see this as a place where they can tap into many resources and find strong leadership supported by relevant research and educational programs that fit Appalachian culture."

Some people already look to the center that way.

Cattle genetics success continues

Ditsch and former UK Professor Mike Collins had 70 cows in a reclaimed mine land grazing project at Perry County's D&D Ranch. The spring calves from that study helped form the Eastern Kentucky Heifer Development Program, spearheaded by D&D ranch manager Larry Clay, Charles May, Perry County extension agent for agriculture and natural resources, and Les Anderson, UK extension beef specialist. The project aims to improve the region's cattle. Producers bring heifers to the ranch in October where they are bred and managed for an 11-month period. Virginia cattlemen and brothers Starling and Carter Fleming have 26 heifers in the program this year.

"I just like working with cattle," beamed Starling Fleming from underneath his worn ball cap. "When I started back in the 1970s, I bought anything I could to get a herd going, and there were no heifer programs back then."

He runs about 60 head of Angus or Angus-Hereford crossbreds in any given year on 357-acres of rough mountain strip-mined land. He's brought heifers to the program at D&D almost since it started 10 years ago. He takes his bred heifers home at the program's end and claims he's seen improvements every year, especially in weaning weights.

RCARS has an ongoing research program in Whitley County that focuses on using goats to control invasive kudzu.

the Hills

LEFT TO RIGHT: Sarah Fannin, Tim Coolong, and Crystal Sparks discuss Keith and Monica Hall's sweet potato crop with ANR agent Mary McCarty.

Mike Gumm, Owsley County cattleman, grew up around cattle. He's brought heifers to the program for about 8 years and has 25 in the current program.

"They do a tremendous job with them, and what they shoot out of here in September is good and healthy," Gumm said. "If it's not top of the line, it won't stay in the program."

May said many producers claim their whole herd is made up of animals from the heifer development program.

"I guess that's a testimony to the program's success," he said. "I've received several reports from consignors and purchasers that they are experiencing far fewer calving problems and rising weaning weights. Regional livestock auction facilities have seen a noticeable improvement in Eastern Kentucky cattle, giving a lot of credit to this program."

While measuring the impact of the program on the region is difficult to assess, Ditsch said the fact that consignors are still submitting heifers to the waitlisted program is one indication that it's meeting a need.

Providing education, leadership for new crop opportunities

On a cool October day, Keith and Monica Hall harvested sweet potatoes on their Morgan County farm, where they also raise livestock and grow corn and hay. The Halls used to grow tobacco, but like many tobacco growers, they're interested in profitable alternatives. With 15 other growers, they formed the East Kentucky Sweet Potato Growers Association in 2009.

With help from RCARS horticulture technician Crystal Sparks, UK horticulture specialist Tim Coolong, and Sarah Fannin, UK extension agent for agriculture and natural resources in Morgan County, the Halls and other growers had a successful first-year crop in 2009 with an estimated 450 to 500 boxes harvested per acre.

"Sweet potatoes are a good fit for this area because you can do it on a small acreage, and if you're doing direct marketing, it's reasonably profitable with a fairly low capital investment," Coolong said. "It's not a high-input crop; the planting is fairly easy with a tobacco setter. You can set sweet potato slips about as fast as you can set tobacco."

Although dry conditions decreased 2010 yields, Fannin is not giving up on sweet potatoes.

"We are still working on issues of consistency," she said. "Yes, we were disappointed with 2010 weather challenges, but the experience prepared us for different things that can happen.

"The Morgan County Fiscal Court has set aside property for a curing/processing facility in a Morgan/Wolfe County joint industrial area right off the Mountain Parkway," she added. "It'll give us a place to eventually create value-added products. The market is there; we just want to handle it properly."

Shawn Wright, RCARS extension specialist for the UK Department of Horticulture, said the center will work with horticulture entrepreneurs to develop new and traditional horticulture crops.

"The same initiative, commitment, and hard-work that are characteristic of the region are the same characteristics that can help individuals have a successful horticulture enterprise given the proper tools, training, and a little bit of luck," he said.

Shawn Wright provides training to growers in Eastern Kentucky who are exploring new and traditional horticulture crops for their enterprises.

LEFT TO RIGHT: Technician Doran Howard and Bobby Ammerman examine a prototype of a clarifier's wood case in the Wood Utilization Center in RCARS.

Combining cutting-edge technology with high-quality Kentucky hardwood

Cary Briggs and business partner Scott Templeton had some great ideas using interactive glass, but they could only go so far given the financial constraints and debt pitfalls of starting a company in today's economy.

Undeterred, Briggs visited with faculty and staff at RCARS, starting a chain of events that could have benefits beyond his own company, Envelop Media.

Bobby Ammerman, extension specialist at RCARS for the UK Department of Forestry, sat down with Ditsch several months ago to talk about ways the center could help reduce many of the upfront risks that go with starting a business, thereby helping to create jobs.

"Then Cary Briggs showed up with ideas for incorporating some interesting technology with a wood product," Ammerman said. "The lights sort of came on in our heads, and we thought, 'Yes, we can help him do this.'"

Briggs needed help designing and building a prototype to house his invention he calls a clarifier, an interactive glass box with far-reaching potential in museums, funeral homes, churches, and more.

"We came to UK because we have a techie product, but we wanted it to have some warmth. With wood as part of the display case, we got that," Briggs said. "UK came through, allowing us to invest our limited resources in product marketability."

"We knew there needed to be a second step; what happens when he sells the product and he needs someone to build it?" Ammerman said. "We wanted to find an Eastern Kentucky entrepreneur and bring them into the mix. We knew we could train them at the wood center and allow them to build the first few items here to limit their risk."

They contacted John Marcum of Somerset, a professional who had taken some wood industry classes at the Wood Utilization Center at RCARS. Marcum was trying to start a business, but didn't have the resources to get it going.

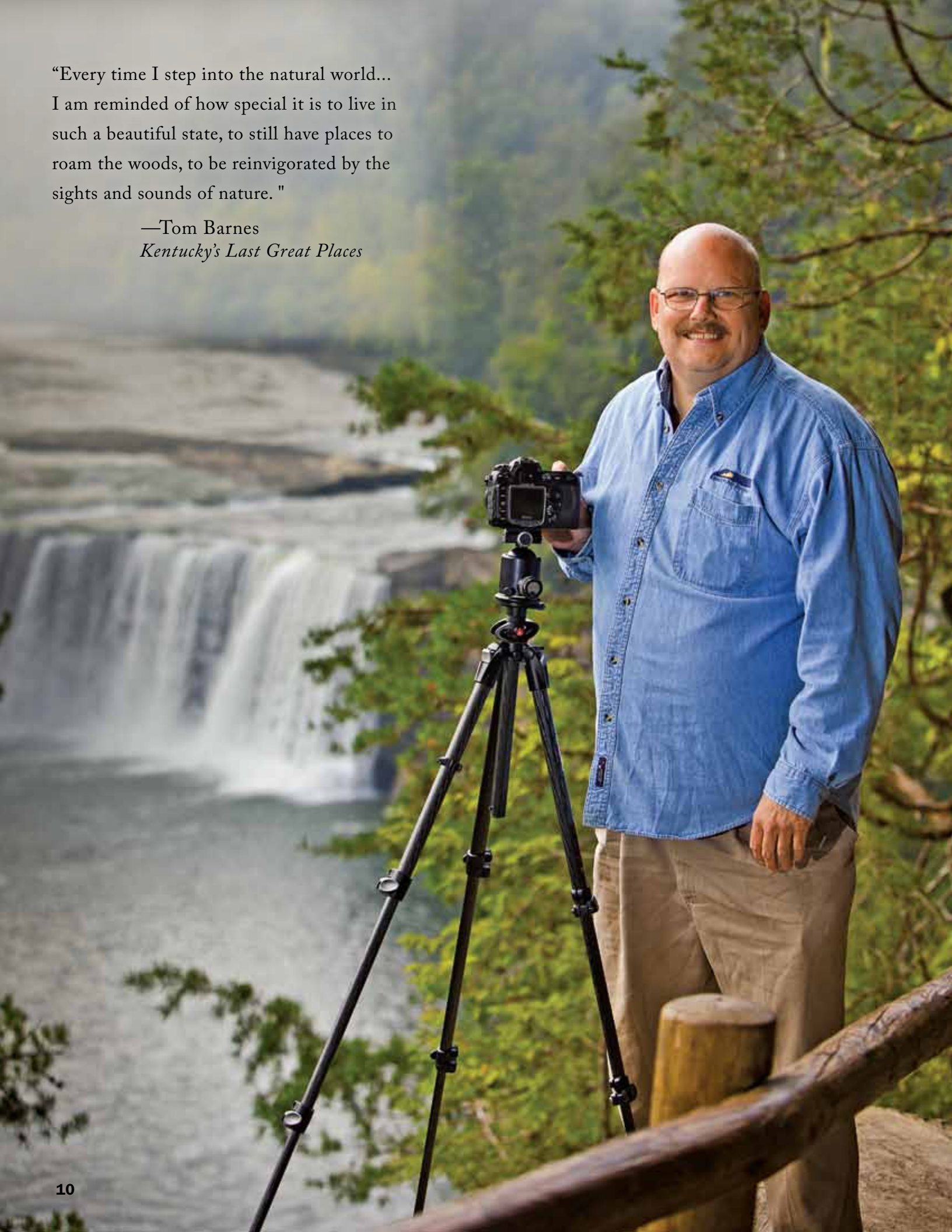
"I think this is so exciting, and I believe it's a good opportunity to build a business," Marcum said. "The support and help I've had at the wood center will shelter me from the risk and start-up costs and make it easier to get loans from outside lenders."

It's a good example of how RCARS uses the region's natural resources in sustainable ways to create sustainable jobs in Eastern Kentucky.

"We've put together resources and people with expertise in wood and technology, and the result is a unique product that uses all that in one package," Ditsch said. "We want to extend this model to other things we do at RCARS including horticulture, animal science, food, and nutrition."

Ditsch hopes their efforts will spur the region's economy, create jobs, and make people want to buy Eastern Kentucky products. ◆

The RCARS Wood Utilization Center provides initial shop space and support for budding entrepreneurs.



"Every time I step into the natural world... I am reminded of how special it is to live in such a beautiful state, to still have places to roam the woods, to be reinvigorated by the sights and sounds of nature. "

—Tom Barnes
Kentucky's Last Great Places

ECOLOGIST WITH A CAMERA

by Carol L. Spence

Tom Barnes doesn't mind the darkness. With walking stick in one hand, tripod in the other, and camera and lenses in a knapsack slung across his back, he plunges along a narrow, nearly invisible forest trail two hours before dawn. Cumberland Falls roars far below; one misstep could end in a serious drop. It doesn't faze him. What's important is getting his camera set up in time to catch the sun's first rays on Kentucky's famous waterfall.

This UK forestry professor has spent most of his adult life searching out perfect places under perfect circumstances to shoot the perfect photograph. And he has the photography awards and the international reputation to prove he's been successful.

Except for this particular attempt, when an impenetrable fog refuses to lift until mid-morning. No dawn's rosy light today. It's one of the hazards of his business.

A message to share

A hike in the woods with Barnes yields more than fresh air and exercise. Every few feet, he points out something of interest. "That's sourwood. If your mouth is dry, chew on a leaf." The photographer in him is immensely pleased when he notices a striking cluster—"Foamflower and blue phlox make a great combination." The conservationist in him is downright ecstatic when he finds a rare plant—"I found the biggest population of rare nettleleaf sage in the state! There were 300 individuals in the population."

If that seems like a lot of excitement over a clump of sage, Barnes' experience and research have convinced him there is reason for concern when it comes to environmental issues.

"We're in a time of unprecedented species extinctions," he says. "In Kentucky, we have the ninth highest species extinction rate in the country."

A call to arms

Barnes is trying to relay a wake-up message to as many people as possible: there's still time to make a difference, but we no longer have the luxury of putting it off. His conservation beliefs energize his work as the state extension wildlife specialist in the College's Department of Forestry. His extension efforts focus on providing agents, faculty, and the general public with information on protecting biodiversity, conserving urban wildlife, and managing wildlife damage. As he writes on his website, managing natural resources more effectively makes "the world and environment a better place for humanity."

Barnes uses his photography, which has been seen in the Smithsonian Institute, Chicago Field Museum of Natural History, and the Bronx Zoo among others, and his five published books (two more are on the way) to help educate the public on what could be lost.

"You can't love it and care for it, unless you know something about it," he contends.

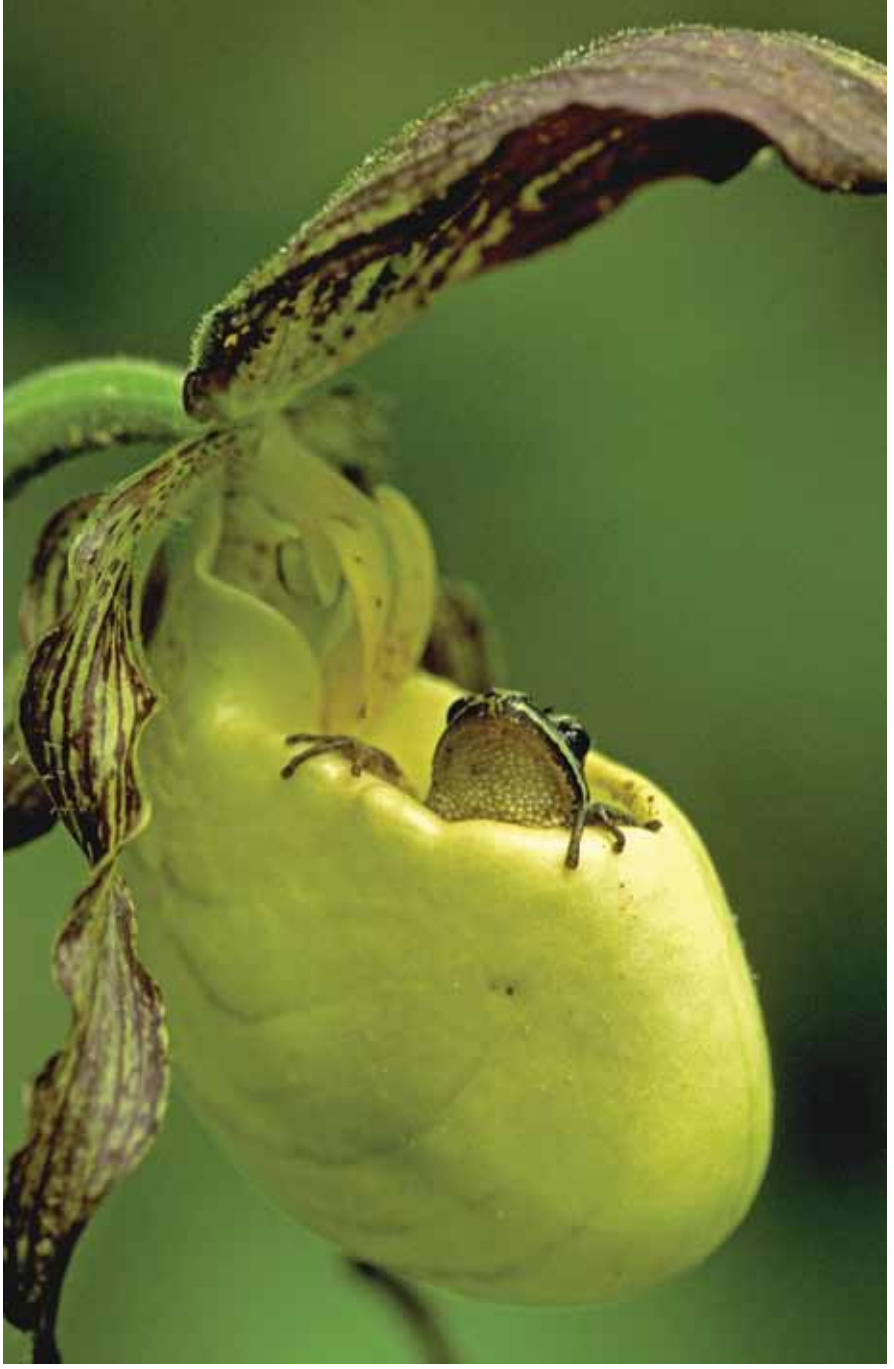
He doesn't just encourage people to save "beauty," but to consider their own responsibility in fixing a larger problem. His conversation is sprinkled with references to clean water, the death of freshwater mussels being the "canary in the mine," and the impending destruction of hemlock trees by the invasive hemlock woolly adelgid and what that will mean to stream habitats. And he speaks passionately about how climate change could cause sea levels to rise and flood poor coastal regions without the resources to protect their people.

"This is where environmental issues become huge moral issues. What we do now will mitigate to some extent the human sacrifice in the future," he said. "And that's got to be a moral choice that we make."

"What we do now will mitigate to some extent the human sacrifice in the future."

Hepatica, a member of the buttercup family, is one of the first flowers to bloom in the spring. Its color can vary from white to pink to blue. Tom Barnes photographed this cluster at Natural Bridge in Powell County, but *Hepatica* can be found throughout Kentucky.

"Just another day in the woods" to Tom Barnes, who was visiting Cumberland Falls State Park when he rose before dawn on a spring morning to take this photograph of the Cumberland River above the falls.



Hello, who's there? Barnes was photographing this Kentucky lady's slipper when he noticed a dark splotch behind the lip. He managed to get three images of this miniscule Upland Chorus frog, which had probably been lying in wait to catch a bee for breakfast.

Shooting Star

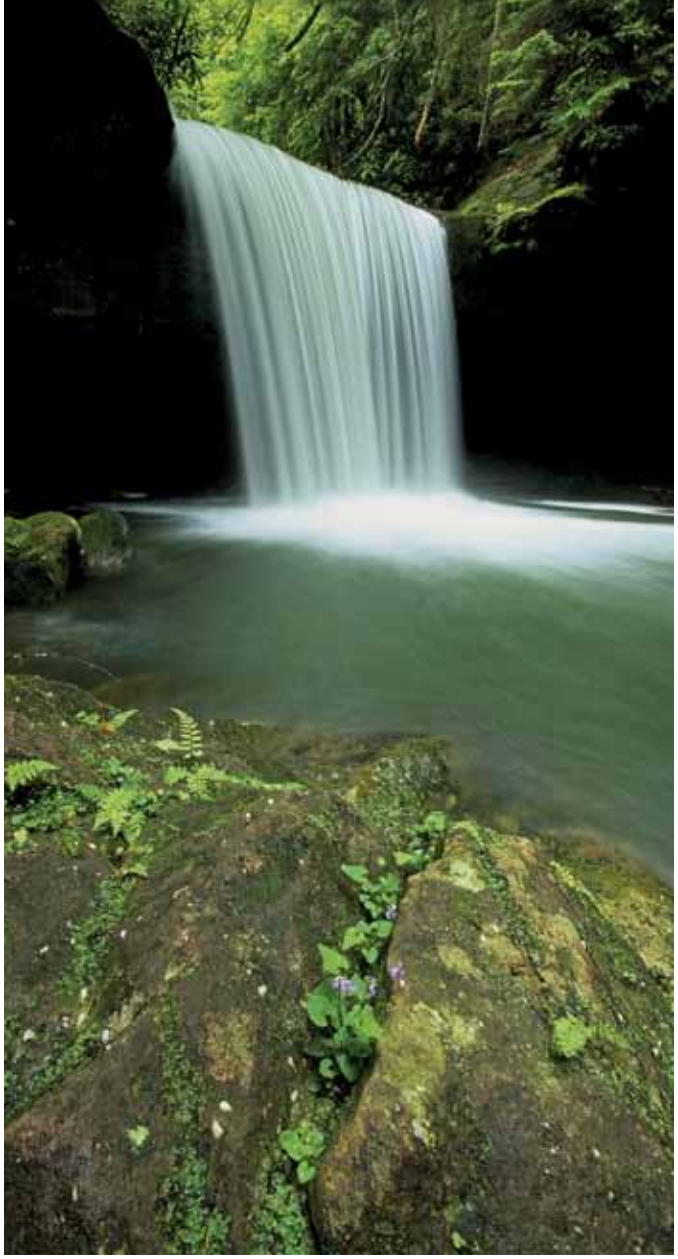
Prairie born, Kentucky blessed

The South Dakota native, born and raised on the unbroken western prairie, moved to Kentucky in 1988 and fell in love with the state's rich environment. Several of his books, including *Rare Wildflowers of Kentucky*, *The Wildflowers and Ferns of Kentucky*, and *Kentucky's Last Great Places*, focus on the state's diverse, often rare, habitats.

In *The Gift of Creation: Images from Scripture and Earth*, Barnes preaches the gospel of stewardship by weaving his photographs of the natural world around theologians' essays. In the process, he reveals a bit about himself.

He is a spiritual man, a man who counts priests and monks as his friends and intellectual companions. He believes humans were given dominion over the earth, not to exploit it, but to protect it.

"In Extension we try to make a difference in people's lives. And I want to make a difference in people's lives," he said. "I want to make their lives better or make the environment better. So I think about the moral aspects of it."



The image as teacher

"Photography is a medium that, particularly within natural resources, has great potential for teaching and/or conservation," he said. "There's a long history of photography, going back to Ansel Adams, for protecting outstanding natural lands."

Barnes purchased his first Nikon camera when he worked for the U.S. Fish and Wildlife Service after graduating with a master's degree in wildlife conservation from South Dakota State University. His first sight of a Texas spring, lush with blue bonnets and paintbrush, bowled him over while he was working on his doctorate at Texas A & M University, and he began to develop an interest in native plants.

"That's how I learned to identify plants," he said. "I would see this beautiful flower, take a photograph, then go back, look it up, and study it. Over the years I've developed a knowledge base based on my photography."

He can spend an hour or more getting the perfect shot, removing intrusive debris, waiting for the right light, and making sure nothing draws the eye away from the focal point in the frame. To see him kneeling on the damp, humus-y forest floor, leaning on his forearms, tossing aside a twig or a leaf, is to see patience in action.

"People don't like going into the field with me, because I'm slow and poke around," he said.

On that early morning at Cumberland Falls, Barnes had a lot of time on his hands waiting for the fog to lift. He used it productively—to study all the minute details of the forest. After more than 25 years of experience in nature photography and wildlife conservation, he still learns things in those timeless moments of quiet.

"It helps tremendously when you sit and observe," he said. "Like wild ginger—it's a pretty nondescript flower that's on the ground, and you think, how's that pollinated? It's not a showy flower, so it's probably not a bee or a butterfly. It turns out it's pollinated by ants. The flower kind of stinks, which is what attracts ants."

Hearing the admiration in his voice for those little details inherent in nature, it's pretty obvious that Barnes found his true calling.

"There have been some great moments. There have been some scary moments, moments of great joy and sadness," he recalls. "There are plants I photographed that aren't there anymore; their habitat had been destroyed."

Through it all, Tom Barnes perseveres and keeps sending out his message through his Extension work and his photographs: Stewardship is our responsibility. If we don't take care of our world, who will? ◆

TOP: Dog Slaughter Falls, a few miles north of Cumberland Falls in the southeastern part of the state. Barnes waded across the creek on this spring day because he saw the marsh violet growing out of the crevice in the rock (foreground) and wanted a composition that other photographers hadn't taken.

BOTTOM: Barnes liked how the broad, variegated leaves and yellow bloom of the trillium broke up the pattern of the iris. It's one of Nature's striking compositions that often catch Barnes' eye.

A Bridge

by Jeff Franklin

Traveling by trains, subways, and buses in a metropolitan city isn't comparable to crossing the Kentucky River on the Valley View Ferry, but that's what 15-year-old Shintaro Kawasaki became accustomed to this past summer. Shintaro was the guest of the Schwab family in their rural Madison County home through the Labo/4-H international student exchange program.

Labo is a Japanese program integrating language, learning, and cultural exploration for students in preschool to high school.

EVERY YEAR hundreds of Labo Japanese students visit the United States for one month in the summer. 4-H Youth Development works in 20 states to find host families for those exchange students. Kentucky 4-H has been bringing Labo youth to the commonwealth since the 1970s.

Mark Mains, a University of Kentucky 4-H youth development extension specialist, oversees matching the exchange students with Kentucky host families.

"Labo is similar to the 4-H club program in the U.S.," said Mains. "They are called Labo parties in Japan, not clubs. Kids join from preschool on up. When they join, they do so with the expectation they will come to America, so parents start saving money when their children are really young."

A Member of the Family

The primary focus of the visit is for the Japanese students to see how the average American family lives, and that's what the Schwabs tried to do for Shintaro.

"It's a great program, and something that's not hard for a family to do," said Greg Schwab, an extension soil scientist in the College of Agriculture. "Shintaro has been like an extra member of

to the East

(Opposite page) A long way from his home in the Tokyo area, Shintaro Kawasaki got to experience rural Kentucky life through Labo and 4-H. (This page) Yuri Watanbe and Katelyn Cox discovered a shared love of sports helped bridge the language barrier.

the family while he has been here."

While staying with the family, which includes Schwab, his wife Rebecca, and their three children, Caroline, Abigail, and host child, 15-year-old Joshua, Shintaro helped Joshua take care of his chickens and gather the eggs each day. They visited grandparents in Ohio and Eastern Kentucky and went to Mammoth Cave, Kings Island amusement park, and the Cincinnati Zoo. He and Joshua stayed up late and played a lot of board games.

Joshua went to Japan on a nine-day, homestay program in 2009. After that trip, he started studying Japanese in a home school class. During the month he stayed with the Schwabs, Shintaro was able to help Joshua with his Japanese.

"Shintaro speaks very good English," Joshua said. "He has helped me a lot with my Japanese studies."

The boys hope to be friends for life.

"I like these people," said Shintaro. "They are very friendly."

To qualify for the program, host families must have a child that is the same age, or close to the same age, as the visiting Labo student. As long as the Schwabs have children at home, they would like to host a Labo student.

"It's a great experience, and I would highly recommend it," said Greg Schwab. "Anybody who thinks they might be interested, should give it a try. It's a wonderful thing."

Music, a Common Language

While the Schwabs were hosting their first Labo student, it was the second time around for Bailey Brown and her mom Robin in Russell County. Bailey, 13, hosted a Labo student in the summer of 2009. She enjoyed the experience so much, she wanted to do it again.

"I am an only child, and I have

I want my children to realize that the world is a small place and to experience different cultures...

always wanted a sister," Bailey said. "I like different cultures and wanted to learn what it was like to have a sister."

Mami Watahiki, 14, was Bailey's "sister" for four weeks last summer. Mami, from near Tokyo, was the perfect match for Bailey because of their musical interests. Mami plays the piano and can play a song after hearing it only once. Bailey, a singer who has competed in beauty pageants, spent a lot of time with Mami accompanying her on the piano. Mami also plays trombone and is in her school's marching band in Japan.

But their time together wasn't just about music. Living in Russell County, the Browns are just the skip of a stone from one of Kentucky's most popular tourist attractions, Lake Cumberland. One evening the Browns took Mami on a pontoon boat cruise of the lake where the girls went swimming and enjoyed the breeze from the boat ride after a punishing day of August heat. And when the school year started and took Bailey away from home during the day, Mami got the chance to go fishing on the lake with Bailey's grandfather.

Both Bailey and her mom said they may even host another Labo student next summer. Robin Brown thinks hosting a student for four weeks, rather than a whole year, like some foreign student exchange programs, works well, but it wasn't going to make saying goodbye any easier.

"We're going to have a hard time letting this one go home," she said. "So I can't imagine a whole year."

Robin said she couldn't bear the thought of letting Bailey go by herself to a foreign country for a month, because she would constantly worry about her. Bailey, though, is eager to go, especially to Tokyo, which she calls "the shopping capital of the world."

Where There's a Room, There's a Way

Beverly Cox and her 12-year-old daughter Katelyn always thought about hosting a foreign exchange student in their Lexington home, but never really had the room. But when the Cox's oldest son grew up and moved out on his own, that changed. Beverly Cox initially made the suggestion to Katelyn, who responded with an excited, "Yes, yes, yes!" Yuri Watanbe, a 13-year-old girl from near Tokyo, was their guest for the four-week stay.

If music was the common thread for Bailey and Mami, Yuri and Katelyn enjoyed the love of sports and being physically active, swimming and playing golf and tennis, during their time together.

Cox kept Yuri's parents abreast of the girls' daily activities.

"I sent them an email every day to let them know what they had done and what she was eating. Because if Katelyn were in Japan at her age, I would want to know everything she is doing," she said.

Cox said she wants Katelyn to experience Japan one day, as well as other cultures.

"I want my children to realize that the world is a small place, to experience different cultures, and if I can't get her to Japan now, I will bring Japan to her."

Beverly Cox enjoys a laugh with Yuri Watanbe during Watanbe's month-long stay with Cox and her daughter Katelyn.

Bailey Brown got the "sister" she'd always wanted—at least for the month Mami Watahiki visited.

And that's what Yuri did, bringing a suitcase full of gifts from her country for the Cox family, something all the Labo students did for their host families.

Cultural Ambassadors

The Labo students were not alone during their visit to Kentucky. Tomoko Enomoto, a Labo club leader and tutor for 25 years, chaperoned the 12 students who came to the Bluegrass State.

For Enomoto, the trip was a homecoming of sorts. Her daughter is married to a Kentuckian, and the couple lives in Lexington. The groom's mother is Marjorie Baker, a UK extension associate. So when Tomoko was chosen to accompany the Labo students to Kentucky, it was an opportunity for Baker and Enomoto to get better acquainted during Enomoto's stay in Baker's Scott County home.

"It gave me a chance to show off Kentucky and be an ambassador for the state," Baker said.

Mark Mains said it takes a "leap of faith" for the Japanese families to send their children to the U.S., but both the Labo and 4-H programs have everybody's best interest in mind.

"What's a better ambassador than a child from another country?" he said. "It started with those roots, sending their children out to represent their country in a non-threatening, cultural-sharing, kind of way. It speaks highly of the relationship between the Labo and 4-H programs." ◆

CENTER: Joshua Schwab (c) and father Greg Schwab (r) gave Shintaro Kawasaki a taste of farm living during his visit last summer.

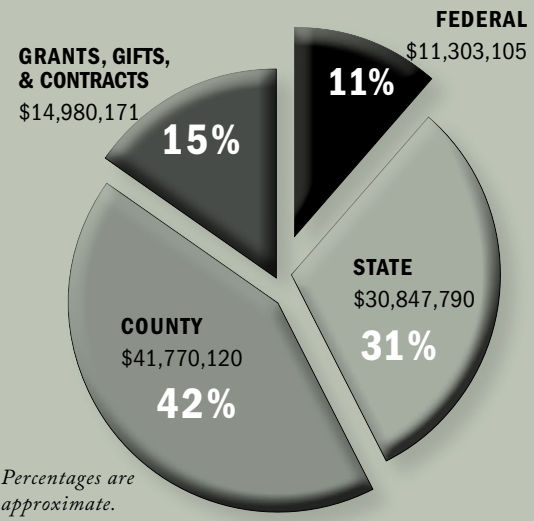
RIGHT: East meets West over some tabletop fun at the Schwab house.

More than $98.9 million in

TOTAL **FUNDING**

for the Fiscal Year 2010

(July 1, 2009 through June 30, 2010)



Percentages are approximate.

GRANTS, GIFTS & CONTRACTS INCLUDE:

- *Extension-related projects and projects led by extension faculty and staff as principal investigators, which also are a part of the annual reporting of the Kentucky Agricultural Experiment Station.*
- *Money received locally for support of county programs.*
- *The budget for the Kentucky 4-H Foundation, which is accounted separately from that of the Cooperative Extension Service, University of Kentucky College of Agriculture.*

PROGRAM **EMPHASIS**

(as defined by number of contacts)

30% Competitive Agriculture

24% Life Skills Development

22% Diet, Nutrition, and Healthy Lifestyles

12% Leadership and Volunteerism

6% Social and Economic Opportunity

6% Agricultural Environmental Quality

KENTUCKY COOPERATIVE **EXTENSION** SERVICE

2010 ANNUAL REPORT

We Make a Difference

I SPENT SOME INTERESTING lunches with a marketing expert, intending to improve how we tell our story. I came prepared with three pages of accomplishments, statements of who we are and what we do. It turns out the consultant did not want to read it (he did eventually); he wanted to see if I could articulate it to him in one concise statement.

And you might imagine the problem; there is so much that we do in agriculture, families, youth, horticulture, and communities. "Extension Makes a Difference" said it best.

UK College of Agriculture's Cooperative Extension Service makes millions of contacts each year through hundreds of programs, meetings and activities. But the best measure of Extension's effectiveness and value is whether we made a difference.

From our annual reports, we know that thousands of individuals made lifestyle changes over the last year that positively impacted their nutrition, health, and lifestyle. We know that, due to Extension programs, agricultural producers adopted practices that produced millions of dollars of additional revenue.

Kentucky 4-H impacts one in four young people, ages 9-19, in a variety of programs. Recent research by Tufts University has shown that 4-H'ers make better grades in school and contribute to their community in higher rates than their peers. Youth in 4-H are more likely to see college as part of their future and are 41 per cent less likely to engage in high risk behaviors than their peers. Truly, that is the kind of difference that Cooperative Extension makes in our families and communities.

Effective programs that make a difference result from a planning process that begins with conversations at the county level. This advisory process, these council discussions, we call our grassroots. We are just beginning the process to completely rewrite the work plans that will guide us for the next four years. We hope to engage you in this important conversation. Working together, we will continue to "make a difference."

JIMMY HENNING
Director, Cooperative Extension Service
University of Kentucky
S-107 Agricultural Science Center
Lexington, Kentucky 40546-0091
E-mail: jimmy.henning@uky.edu

Ag behind the lines

LARRY GOODE will head to Afghanistan this spring. Goode, an engineer who grew up on a farm in Franklin County, will be part of a National Guard agriculture development team. It will be the plans and programs specialist's second trip to Afghanistan in the last five years.

Specialists from the University of Kentucky Cooperative Extension Service helped prepare Goode and other members of his team for the mission by providing a broad-based week of training. Horticulture specialist Tim Coolong taught the Guardsmen about vegetable crops, growing vegetables in low-cost, high-tunnel greenhouses, and organic vegetable production. Professor John Strang, extension fruit and vegetable specialist, talked to the group about general tree fruit culture including site selection, soil preparation, tree planting, and variety selection of apples, pears, peaches, plums, and apricots. The group also traveled to Kentucky State University's research farm to look at goat and sheep production and KSU's aquaculture program.

"By no means is this training making us an expert, but it is giving us an overview of things to keep in mind and look at in the whole process," Goode said. "The ultimate goal is to get the Afghan people to help themselves and stabilize and feed themselves."

This was the second National Guard group UK extension specialists have trained. The team that currently is stationed in Afghanistan is helping to establish orchards and poultry production. Goode and his team, which will be in Afghanistan for a year, will carry on when the current team returns this spring.

The assistant extension director for agriculture and natural resources, Gary Palmer, said the National Guard approached UK for help in training the agriculture development team for its mission to Afghanistan. Palmer said UK extension specialists were eager to do it.

"Our specialists and extension people may never know what it is like to walk in these National Guardsmen's boots over there," Palmer said, "but this gives us a chance to have a little part in helping them be successful, and we are more than happy to do that."

A layered success

THE ECONOMY has not been kind to Brick Green and other wholesale nursery owners. He's not been selling the volume he needs and needed something to move his Green's Silo House Nursery in Paducah forward. He decided to try onions.

Green worked with University of Kentucky Cooperative Extension Associate Vaden Fenton. He grew 1.5 acres of candy onions—a yellow-globe onion with bulbs up to 6 inches across—in four, 150-foot-long raised beds. That's a lot of onions.

"This was my first year for onions, and they were a success. I'm planning to grow them again," he said. "I had a lot of ground where the soil needed to be amended, and this was the perfect project to accomplish that too."

UK Extension vegetable specialist Tim Coolong said new crops are important to Kentucky vegetable growers, and onions are a good option to expand market opportunities.

"Onions are relatively easy to grow and harvest, and they store fairly well," Coolong said. "Unfortunately, 2010 yields for many growers were down somewhat due to high temperatures and the bacterial diseases that accompany them. If growers harvest early enough, before extreme heat, we can avoid most bacterial diseases."

Coolong said sweet onions have been a good seller.

"The single best variety to grow here is the Candy variety, but others also have performed well."

Green sold his first-year crop to other growers who operated roadside market stands or had space at farmers markets.

"I learned a lot that will help me do it better next year," he said. "We'll work on uniformity of water and consistent size next year."

Similar onion projects are under way in other areas such as Crittenden County, where Amish growers are working with UK researchers and extension agents growing onions on plastic mulch with drip irrigation. This results in higher soil temperature, cleaner products, reduced water problems, and maximized fertilizer use.

Finding ways to produce new crops, Coolong said, continually offers more options for consumers to take an interest in Kentucky producers.

'Local' advocates

THE AROMA of freshly baked zucchini muffins drifts through the kitchen of the Boone County Cooperative Extension office and mingles with the earthy scent of freshly picked herbs and vegetables. Mary Bruins peels and slices carrots, and her lunch partner, Peggy Lisnek, does the same to a butternut squash.

They're taking part in "Walk and Wok," the brainchild of Family and Consumer Sciences Agent Diane Mason. The program starts with a group walk, followed by a tour of the farmers market, where vendors explain how to select and prepare some of the more unusual items. Then everyone adjourns to the office's kitchen, where they prepare lunch from recipes Mason provides.

"One of the things I love about this class is cooking with someone," Lisnek said. "The camaraderie makes a big difference."

Agents across Kentucky are building on that idea of camaraderie to entice people into incorporating fresh, locally grown food into their daily diets. At the annual "100-Mile Potluck" in Barren County, guests are urged to bring dishes made from ingredients produced within 100 miles. And in Whitley County, the entire extension staff was instrumental in turning the local farmers market into a weekly community event, complete with food, the arts, and games for the kids.

"We are creating a community when we bring people together like this, as well as supporting the local economy," said Phil Meeks, agriculture and natural resources agent in Whitley County. "When people know and support the people who grow their food, the whole community grows stronger, both economically and psychologically."

Back in Boone County, Bruins was enthusiastic about her new lifestyle.

"I've loved learning how to prepare some of the vegetables that I would never have bought before. It's turned me into a farmers market shopper. I don't miss it on a Saturday now, and I usually see Peggy there," she said, referring to her kitchen partner.

The program has convinced Lisnek to eat only natural, local foods whenever possible. "We have the most wonderful meat lady here. I never realized how good beef could taste," she said. "I love it."

Thanks to Cooperative Extension introducing people to the possibilities, enthusiasm is building for local food all around Kentucky.

On the wings of science

AT ONLY 12 YEARS OLD, Hopkins County 4-H'er Trevor Adams knows he wants to soar high in his future career, which is why he attended 4-H Aerospace Camp.

"I want to be in the Air Force, and when I retire, I want to be a pilot," he said.

The three-day camp held at West Kentucky 4-H Camp introduces students in grades 6-12 from Western Kentucky to careers in aerospace, math, science, and technology. Using math and science applications they've learned in school, 4-H'ers complete many hands-on activities in rocketry, kite design and construction, computer flight simulation, and navigation using global positioning systems. Camp highlights include flying an airplane with the help of a certified flight instructor and riding in a hot air balloon.

"We want the kids to try some new and exciting things they may not have done before and give them a good appreciation of math and science," said Lloyd Saylor, Butler County 4-H youth development agent. "Flying is a lot of fun, but it's also a lot about physics, mathematics, GPS, and navigation."

Saylor was the driving force behind the creation of the camp that was partially funded by the Kentucky Agricultural Development Board through an endowment established with the Kentucky 4-H Foundation. Saylor was inspired by Heath Martin, his former 4-H'er who is now a commercial pilot. Martin decided he wanted a career in aviation after attending a one-day program presented by the Navy when he was a teenager. He volunteers as a certified flight instructor at camp each year.

"Seeing the looks on the kids' faces in the airplane brings back memories of my first flight," Martin said. "It's really important to get out there and not only inspire kids to fly but give them some facts and let them talk to people who work in the industry."

Both Saylor and Martin hope it fuels 4-H'ers' desire for careers in math and science-related fields just like it did for Trevor, who had the opportunity to take the controls during the plane's take-off.

While the camp is only offered in Western Kentucky, Saylor hopes it will expand to other areas of the state in coming years.

We Make a Difference

By the Numbers

Extension made 7,738,000 contacts in Fiscal Year 2010.

235,657 youth were involved in 4-H Youth Development programs, meaning one in four youth in Kentucky are **involved in the 4-H experience**.

18,474 farmers adopted at least one new practice taught in Extension programs. Farmers who did documented **over $33 million in additional income**—an increase of $12 million over last year. This tremendously benefits Kentucky counties through the spending and re-spending of dollars on local goods and services.

Extension helped 103,541 Kentuckians make lifestyle changes through health and wellness initiatives. More than 2,000 collaborations and joint programs were formed with non-Extension organizations to focus on **nutrition and health**.

Extension continued efforts in developing personal and **interpersonal skills** among clientele. 58,293 citizens indicated increased knowledge, skills, or confidence through participating in last year's Extension programs and 141,019 youth and adults used skills learned through Extension to **address community needs**.

36,406 Kentuckians adopted one or more practices relating to conserving, sustaining and/or protecting **soil resources**, and more than 33,000 adopted practices to insure **safe water.** 635,496 acres of land benefitted from new or additional **conservation practices** as a result.

Extension collaborated with numerous local public libraries, family resource centers, childcare centers, Head Start, public schools, and places of worship to engage 19,895 youth in 85 counties in the **Literacy Eating & Activity for Pre-school Program** (LEAP). As a result, 15,518 children increased their level of **physical activity**.

More than 19,000 youth completed six or more hours of communications programming. 14,207 youth participated in speeches and demonstrations; from this, 6,843 indicated that they have used their **communication skills** to assume a leadership role in 4-H or other organizations.

Extension engaged clientele in **Small Steps to Health & Wellness**. As a result of the program, 19,513 citizens noted having a decrease in daily calorie consumption.

61 farming operations participated in the **Grain Crops Academy** this year, representing 80,054 production acres.

Extension helps youth and adults reach their full potential in developing pertinent life skills. 175,561 Kentuckians demonstrated a positive increase in **practical living skills**. This included 28,016 who adopted one or more practices to **reduce debt** or **increase savings**.

1,463 citizens participated in Weight—The Reality Series. The average amount of **weight lost** was **8 pounds** per person. The average waist reduction per person was 3 inches.

Elizabeth Chaney wants to run a business.

She comes by that ambition honestly—she grew up as part of the family dairy operation, which in 2000 became Chaney's Dairy Barn, a successful agritourism enterprise in Bowling Green.

Chaney, a senior in agricultural economics, Ag Ambassador, and leader in dairy organizations on campus and nationally, is the first recipient of the Turner Scholarship Fund, established for first-generation college students in memory of the late Larry Turner. Turner was associate dean for extension when he died in the crash of Comair Flight 5191 in August 2006.

In June of that year, Turner and his wife Lois attended the grand opening of the new Letcher County Cooperative Extension office and met William Ison, who was to be a freshman at UK that fall.

The couple talked at length with him, who like the Turners themselves, was a first-generation college student.

"Dr. Turner was a real down-to-earth guy," Ison said. "That meeting got my hopes up about UK and what I could achieve there."

Lois Turner remembered Ison when setting up the scholarship, which she says is "really a gift from the hundreds of people throughout the state related to the College of Agriculture who gave money in Larry's memory."

Chaney is honored to receive the Turner scholarship. "Dr. Turner was someone my family looked up to."

the magazine
College of Agriculture
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The magnificent and the miniscule. Fauna meets flora in this Tom Barnes photograph.