



**The Voice of Science in
Kentucky**

Enhanced Affiliates

Alice Lloyd College
Bellarmine University
Berea College
Brescia University
Campbellsville University
Centre College
Eastern Kentucky University
Georgetown College
Kentucky Community &
Technical College System
Kentucky State University
Midway College
Morehead State University
Murray State University
Northern Kentucky University
Spalding University
Transylvania University
University of Kentucky
University of Louisville
University of Pikeville
Western Kentucky University

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**Sustaining Member - \$500 level
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Kentucky Wesleyan College
Lindsey Wilson College
Thomas More College
University of the Cumberlands
Wood Hudson Cancer Research
Laboratory

Associate Member - \$100 level

WKU Crawford Hydrology Lab

**Faculty, staff and students at
Enhanced Affiliate member
organizations receive:**

- free KAS membership
- online access to KAS Journal
- KAS Newsletter via e-mail

Current and archived issues of the KAS newsletter are available at www.kyscience.org. You may contact the Editor of the KAS Newsletter via e-mail at executivedirector@kyscience.org.

KAS Newsletter

www.kyscience.org

Sarah Mardon, Editor

February 2015

From the President.....

Dear KAS members,

As the incoming president, I would like to express my gratitude to all of you for your continued involvement and support for the Academy and its mission. I eagerly look ahead to 2015 and what we can accomplish together within this extraordinary organization as the voice of science in Kentucky.

First, let me thank those who made the 100th Annual Meeting such a success. Excellent plenary and symposium presentations were made by Dr. Lee Todd, Jr. (Former President, University of Kentucky), Carole L. Cramer (Director, Arkansas EPSCoR Center for Plant-Powered Production), Tracie Prater (NASA Marshall Space Flight Center), Nancy Martin (Chair, Statewide Committee, KY EPSCoR Program), Joanne Lang (Kentucky Science and Technology Corporation, Advance Kentucky), Jim Krupa (University of Kentucky), and Jerzy Jaromczyk and Kristen McQuerry (Journal of the Kentucky Academy of Science). The meeting was held at the Lexington Convention Center, and it was the first year in a long time that an annual meeting did not have a university host, which made for some unique challenges. In addition to all those who worked tirelessly to make the meeting come off smoothly, I particularly want to acknowledge, Amanda Fuller (Executive Director) Melony Stambaugh (Program Coordinator), KC Russell (President), and Cheryl Davis (Past President) for their efforts that were above and beyond the normal calls of duty. Amanda and Melony are amazing organizers. Continued on pg.

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Today, KAS is a financially stable, vibrant, and successful academy. KAS has been and is an effective, well-recognized advocate for science education and engagement and strong supporter of the commonwealth's efforts to attract research dollars. Over the coming months, not only we will be preparing for the 101st meeting at Northern Kentucky University, but also looking forward to where we want to be over the next decade and more. As we have ended the first century of the Academy, it will be a time to reflect on our history, understand where we are now, and begin to plan for the future. Annual meetings are now drawing 800 participants with more than 450 presentations, half of which are by students and early career scientists representing nearly all of Kentucky's universities and colleges. The inclusion of so many students doing excellent research bodes well for the future of science not only in Kentucky but wherever they should land.

A history of KAS over its first century has been published recently in the Journal (Volume 75 (1-2) pp. 1-34. 2014) and is available on our website (kyacademyofscience.net). The article is based on Ted George's excellent publication on the history of KAS published in the Journal in 1992 with updates over the past 22 years. It was my task, with help from a number of Academy members, to add the more recent information to ensure our heritage is documented and recorded. For me it was a wonderful experience that forever increased my admiration for those who have gone before us. There was a call for formation of the Kentucky Academy of Science that was set for May 8, 1914. Forty-four people attended and the Academy was born. The number of members doubled to 91 by 1917. Membership grew steadily through the 1960 making a real jump in the 1970s to 900 by 1990. After Enhanced Affiliates were initiated in 2008, the membership is now more than 2600 in 20 disciplines. It is obvious that none of the founding fathers are still alive, but would they recognize the Academy of today, would they be pleased? The advances in science, technology,

and education should please them along with the growth of the membership.

What the next 100 years will bring? Academies do not run by themselves but are the collective wisdom, voice, and involvement of the entire membership. No organization can stand still and expect to meet the challenges of the future. Those challenges may be good or bad, and many will be just as unforeseen as in the first 100 years. The 101st year of the Academy presents an opportunity for us to begin strategic planning of where we hope to be in the next 5 years, 10 years, and perhaps beyond. So one of our goals for this year is to formulate a plan that can provide a roadmap for the Academy to continue to flourish, and as the process moves forward, the contributions of Academy members are paramount.

I encourage all members to visit our great website (<http://www.kyscience.org/>) for more information on this and other opportunities for involvement in Academy programs. To reiterate Past President KC Russell's words from his 2014 letter, we "ask all members to consider what you might be able to contribute in service to KAS, whether it be volunteering at a KAS event, giving a lecture on behalf of the KAS, making us aware of events that we may share, nominating someone for a superlative award, or serving as a Governing Board member or filling one of the open committee positions. If each member did just one thing to support the academy the impact would be significant."

Please feel free to contact me, Amanda, or members of the Board (listed in this Newsletter) with any and all suggestions, comments, questions, or concerns at any time. I wish all of you a great 2015.

-David S. White
dwhite@murraystate.edu

KAS Centennial meeting, November 14-16, Lexington, KY

Annual Meeting Registrations

Total Registration – 846 (484 Students)

795 preregistrations, 51 on-site

Abstracts – 471

Registration revenue =\$24,339

Sponsors

Platinum level:

Ohio Valley Scientific

Ridley Hull Financial Consulting group of Wells Fargo Advisors

ASRC Michelin

Gold level:

EKU Graduate School

Kentucky Bioprocessing

Clariant Corporation

Silver level:

MPD Inc.

Macmillan Science & Education

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Bronze level:

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Kentucky State Nature Preserves Commission

Friend level:

Kentucky Science Center

Exhibitors

American Chemical Society-Lexington Section

B&B Micro

Department of Chemistry, University of Kentucky

EKU STEM-H Institute

John Wiley & Sons

Journal of the Kentucky Academy of Science

KBRIN (Kentucky Biomedical Research Network)

Kentucky Bridge to a Biomedical Doctorate

Kentucky Girls STEM Collaborative

Kentucky Organization of Field Stations

Kentucky Paleontological Society

Kentucky Science & Technology Corporation

Kentucky State Nature Preserves Commission

Kentucky State University Masters in Environmental Studies

KSTA (Kentucky Science Teachers Association)

Macmillan Science & Education

Morehead State University's Space Systems Engineering

Murray State University College of Science Engineering and Technology
 Posters at the Capitol
 Sullivan College of Pharmacy
 UK Center for Applied Energy Research
 University of Kentucky College of Pharmacy
 University of Louisville School of Interdisciplinary and Graduate Studies
 Waters Corporation
 WKU Ogden College
 Sponsor / Exhibitor Revenue = \$9065

Abstracts Summary

2014 Abstracts by Section		Oral				Poster		
Section	Total	No competition	URC*	GRC**	Subtotal orals	No competition	URC*	Subtotal posters
Agricultural Sciences	37	7	5	5	17	11	9	20
Anthropology and Sociology	10	1	6	0	7	1	2	3
Botany	17	6	1	2	9	2	6	8
Cellular & Molecular Biology	36	1	9	4	14	7	15	22
Chemistry: A/P	30	3	4	2	9	5	16	21
Chemistry: O/I	44	2	11	2	15	9	20	29
Computer Information Sciences	8	3	1	2	6	1	1	2
Ecology and Environmental Sciences	58	4	5	12	21	27	10	37
Engineering	17	1	8	7	16	0	1	1
Geography	11	7	0	2	9	1	1	2
Geology	10	2	4	2	8	1	1	2
Health Sciences	25	1	7	2	10	3	12	15
Mathematics	8	7	1	0	8	0	0	0
Microbiology	26	5	4	2	11	5	10	15
Physics and Astronomy	16	3	5	0	8	4	4	8
Physiology and Biochemistry	35	1	10	6	17	6	12	18
Psychology	36	0	4	5	9	12	15	27
Science Education	20	9	4	1	14	2	4	6
Zoology	27	0	6	1	7	7	13	20
Total	471	63	95	57	215	104	152	256

*Undergraduate Research Competition

** Graduate Research Competition

2014 Abstracts by Institutional Affiliation (first author)	Total
Asbury University	11
Bellarmino University	8
Berea College	45
Campbellsville University	4
Centre College	18
University of the Cumberlands	1
Eastern Kentucky University	47
Georgetown College	5
KCTCS	5
Kentucky State University	41
Kentucky Wesleyan College	4
Morehead State University	60
WKU Crawford	1
Murray State University	15
Northern Kentucky University	59
University of Pikeville	10
Spalding University	1
Thomas More College	1
Transylvania University	10
University of Kentucky	30
University of Louisville	16
Western Kentucky University	66
Kentucky Biomedical	2
Wood Hudson Cancer Research Laboratory	3
Other	8
	471

Superlative Award Winners Details on page 16 & 17 of the Newsletter

Dr. Cynthia Miller, University of Louisville,
Outstanding Early Career in post-Secondary
Education

Dr. Rodney King, Western Kentucky University,
Outstanding College / University Teacher

Dr. Ralph Thompson, Berea College, Outstanding
College / University Scientist

Jeanne Harris, Outstanding Service to the
Academy

Student Research Competition Winners on page 13 of the Newsletter

Banquet “dividend” to be put used for Special Purpose

Because of some problems at the Annual Meeting banquet, the Hyatt did not charge us for the Saturday banquet dinner. That leaves KAS with the money we collected from banquet tickets which we have decided to put toward a special purpose in 2015. The Governing Board will be determining how to use this \$5740 and we will make an announcement to membership after the February 2015 board meeting with further information.

****Many thanks to Participants who filled out the Meeting Evaluation on paper or online. We value your feedback and will be taking it into consideration in planning the 2015 meeting at NKU.****

KAS Governing Board Updates

The Nominations and Elections Committee congratulates those who were elected to office and expresses sincere appreciation to all those willing to serve the Academy by allowing their names to be placed into nomination.



Newly elected Board Members:

Vice President: Darrin Smith, Eastern Kentucky University

Secretary: Pamela Feldhoff, University of Louisville

Social and Behavioral Sciences Representative: Kerrie McDaniel, Western Kentucky University

Physical Sciences Representative: Richard Gelderman, Western Kentucky University

Continuing Board members in 2015**Officers:**

Past President, K.C. Russell, Northern Kentucky University

President, David White, Murray State University

President –Elect, Eric Jerde, Morehead State University

Treasurer, Rodney King, Western Kentucky University

Division Representatives and At-Large Representatives Members:

-Pamela Feldhoff (2015 - Biological Sciences) University of Louisville

-Chris Adams (2016 - Biological Sciences) Berea College

-R. Douglas Chatham (2012 - Physical Sciences) Morehead State University

-Judy Voelker (2014 - Social & Behavioral Sciences) Northern Kentucky University

-David Butz (2012 - Social & Behavioral Sciences) Morehead State University

-Mary Janssen (2016 - At - Large) KCTCS

-KatieAnn Skogsberg (2015 - At - Large) Centre College

-Claire Rinehart (Editor, Webpage) Western Kentucky University

-Nancy Martin (AAAS/NAAS Representative) University of Louisville

Ex-Officio board members:

Executive Director, Amanda Fuller, Kentucky Academy of Science

Editor, JOURNAL, Jerzy Jaromczyk, University of Kentucky

Program Coordinator, Melony Stambaugh, Northern Kentucky University

Editor, NEWSLETTER, Sarah Mardon

Director, Kentucky Junior Academy of Science, Ruth Beattie, University of Kentucky

2015 Section Officers

Section	Chair	Secretary
Agricultural Sciences	John Sedlacek John.sedlacek@kysu.edu	Thomas Kingery Thomas.kingery@wku.edu
Anthropology and Sociology	Benjamin Freed bzfreed@eku.edu	Andrew Deane Andrew.deane@uky.edu
Botany	Maggie Whitson whitsonma@nku.edu	Christopher Adams adamsch@Berea.edu
Cellular & Molecular Biology	Dawn Anderson dawn_anderson@berea.edu	Rob Wyatt Robert.wyatt@wku.edu
Chemistry: Analytical/Physical	Donghui Quan Donghui.quan@eku.edu	Celeste Morris Morrisc2@nku.edu
Chemistry: Organic/Inorganic	Mary Robert Garrett garrettm@berea.edu	Judy Jenkins Judy.jenkins@eku.edu
Computer Information Sciences	Jerzy Jaromczyk jurek@cs.uky.edu	Sherif Rashad s.rashad@moreheadstate.edu
Ecology and Environmental Sciences	Luke Dodd Luke.dodd@eku.edu	Ben Brammell Ben.brammell@asbury.edu
Engineering	Yuqiu You Yu.you@moreheadstate.edu	Ni Wang Ni.wang@moreheadstate.edu

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Geology	Frank Ettensohn fettens@uky.edu	Tom Brackman brackmant1@nku.edu
Health Sciences	Avinash Tope Avinash.tope@kysu.edu	Joseph Mester Mesterj1@nku.edu
Mathematics	Douglas Chatham d.chatham@moreheadstate.edu	John Porter jporter@murraystate.edu
Microbiology	Geoff Gearner g.gearner@moreheadstate.edu	Erin Strome Strome1@nku.edu
Physics and Astronomy	Keith Andrew Keith.andrew@wku.edu	Robert Arts robertarts@upike.edu
Physiology and Biochemistry	Sarah Blank Sarah_blank@berea.edu	Patrick Mineo Patrick_mineo@berea.edu
Psychology	KatieAnn Skogsberg Katieann.skogsberg@centre.edu	Mykol Hamilton Mykol.hamilton@centre.edu
Science Education	Shen Liu Shen.liu@kctcs.edu	Karen Hlinka Karen.hlinka@kctcs.edu
Zoology	Philip Lienisch Philip.lienisch@wku.edu	David Eisenhour d.eisenhour@moreheadstate.edu

Message from the Executive Director

Thanks to everyone who celebrated with us at the Centennial meeting- we had a record attendance again this year and it was a memorable 100th Anniversary.

Be sure to check out more photos of the meeting at our website, www.kyscience.org

Strategic Planning for the Future of KAS

2015, KAS will be undertaking a strategic planning process to chart our course. We will be examining ways that the Academy can continue to promote science and science education in the Commonwealth in the 21st century.

We will be using the feedback we got from you, our members, in the membership survey last year, and some of the ideas you gave us at the Idea Station at the meeting in November.

Please continue to share your ideas with us: Send an email with "Strategic Planning" in the Subject line, to me at executivedirector@kyscience.org

Invite KAS to your campus or business

I would be happy to come make a 30-45 minute presentation about the Kentucky Academy of Science at your campus or workplace. If you have a brown-bag series, a campus club or organization, or a lunchtime meeting opportunity, please let me know. I am always happy to meet our members and fellow scientists around the state and can share more with you about our work promoting science, and the benefits of KAS membership. Email Executive Director Amanda Fuller at executivedirector@kyscience.org or call 859-227-2837 to set up a visit.

KAS Membership

We are now 3007 Members!
1656 Regular members
1269 Student members
60 lifetime members
22 other categories (honorary, etc.)

Affiliates

30 Institutional Affiliates in 2014, (20 of which are Enhanced affiliate members)
This number is up from 27 in 2013, (18 Enhanced)

Kentucky Science Center Partnership

It's been one year since we started our collaboration with the Kentucky Science Center. Thanks go out to dozens of our members who have volunteered to help, and who have come out to help teach science for Science Center events throughout 2014. You have helped the Science Center with Youth Science Summits around the state, Science Celebrations at the Science Center in Louisville, tutoring for Science Center staff, and you've offered your insights into training up the next generation of science teachers. Thank you! All of these initiatives will continue in 2015.

"Ask Our Scientists"

We've also got new ideas for how to bring science to more people. The Science Center would like to set up an "Ask Our Scientists" page on their website and would like Kentucky Academy of Science members to be featured as experts to answer questions. This page would serve science-curious people, including Kentucky teachers who might want support with the Next Generation Science Standards. Some of you have already volunteered to help with this—it will most likely entail responding to a few questions per year, within about 2-3 days, with a couple of paragraphs of explanation appropriate for a non-scientist.

if you are interested, please send an email with "Ask Our Scientists" in the subject line, and tell us your field(s) of expertise, to executivedirector@kyscience.org



Kentucky Science Center early 2015 events

megaBITE Food Event February 12 –Part of the Adult Science Series. Do you have interesting food –related research or a table-top demonstration to share with visitors? Please Contact: andrew.spence@louisvilleky.gov
National Engineers Week February 26-28 – The Science Center is looking for show& tell or table-top demonstrations to share with visitors during these three days. If you can come for a couple hours to inspire the next generation of engineers, we'd love to have you. Please Contact: andrew.spence@louisvilleky.gov

Kentucky Science Center is hosting Louisville Regional Science & Engineering Fair (LRSEF) on March 7, 2015. The LRSEF serves all interested students in grades 6-12 living in 52 Kentucky counties. Students are welcome to register for the annual LRSEF as a result of being selected as a winning project at their school or county science & engineering fair. If NO locally accessible fair is held, any student in public, private or home school may register directly to enter LRSEF, with the support of their teachers.

2015 KAS Research Grants winners

Winners will be announced by email and on the KAS website in February 2015.

Thank you!

Amanda Fuller, KAS Executive Director
executivedirector@kyscience.org
727 W. Main St., Louisville 40202
(859) 227-2837



NOTEWORTHY NEWS



**CARMICHAEL'S
BOOKSTORE**
Louisville's Oldest Independent Bookstore

Carmichael's and Kentucky Science Center Present:

ALAN LIGHTMAN

Alan Lightman—trained as a theoretical physicist—is the author of six novels, including the international best seller *Einstein's Dreams*, as well as *The Diagnosis*, a finalist for the National Book Award. He will be interviewed by Andrew Spence from the Kentucky Science Center about his newest memoir, *Screening Room*. This special interview style event will be held at the Bristol Bar & Grille, 1321 Bardstown Rd. Appetizers and a cash bar will be provided. Tickets are \$5.

Event Details

- Date: Monday, February 16th at 7pm
- Location: Bristol Bar & Grille, 1321 Bardstown Rd Louisville, KY 40204
- Tickets: \$5
- Light appetizers and cash bar
- Hosted by Carmichael's Bookstore & KY Science Center

[PURCHASE TICKETS](#)

Author Information Wanted!

If you are a KAS member and have recently published a science focused book please forward this information to the KAS newsletter editor (sarahmardon@gmail.com) so that your accomplishment can be shared with other scientists in Kentucky. We look forward to hearing from you!

GRANTS

Looking for research funding? Grants.gov sends weekly emails about federal research grants opportunities. You can sign up to get announcements about funding available in your field of research. Check out the listings, or subscribe, at www.grants.gov.

Idea State U

"A program of the Cabinet for Economic Development, the Idea State U business plan competition is designed to encourage innovation and entrepreneurship by awarding over \$100K in prize money to student teams from the Commonwealth's colleges and universities. The competition is open to every postsecondary school in the state. For more information go to www.ideastateu.com."

Journal of the Kentucky Academy of Science

The 2014 commemorative Centennial Issue will be on its way soon! As a member, you can log in and access all of our journal issues at www.kyscience.org. The Journal is also indexed and searchable at www.bioone.org. Consider publishing your latest research in the Journal – details are at our website. Estimated deadlines for fall and spring issues will be January and July, but contact Journal Editor Jerzy Jaromczyk (jurek@cs.uky.edu) for details.

Association of Southeastern Biologists

The Association of Southeastern Biologists (ASB) has an upcoming annual meeting of our Association, April 2015 in Chattanooga, Tennessee. We will be accepting abstracts until **February 8th** (extended deadline). Please see <http://www.sebiologists.org> for more information. If you have questions or need more information, please contact Judy Awong-Taylor at jawongta@ggc.edu.

Dr. Thomas G. Barnes, 1957-2014



Dr. Thomas G Barnes

photo courtesy of University of Kentucky

Dr. Richard K. Kessler (Chair) and Zeb Weese
(KHLCF Biologist)

Usually we use this space to highlight a project or initiative of the Kentucky Heritage Land Conservation Fund (KHLCF), but this issue we would like to highlight the career of a member of the KHLCF family whom we lost recently. Dr. Thomas G. Barnes, University of Kentucky Wildlife Extension Professor, passed away on October 12, 2014, after a long battle with illness. This is a great loss to the conservation community of Kentucky as well as to his loved ones. Dr. Barnes authored more than 50 scientific research articles, 60 cooperative extension publications and 100 magazine articles, most of which focused on native plants and natural areas. His research emphasis has been on the restoration of native grasslands and his extension programs focus on the conservation of biodiversity and wildlife management. Despite his illness he remained an active researcher; a paper he co-authored was published in the *Natural Areas Journal* the month of his passing.

He was a respected academic whose invasive species management research influenced land managers in Kentucky and throughout the nation, including the graduate students he mentored, but his real passion was educating the general public about biodiversity issues. In addition to his professional interests, Tom gave freely of his time and talents to many conservation organizations, including the KHLCF and the Kentucky Native Plant Society (KNPS). He regularly led field trips and gave presentations on biodiversity issues to groups of all

types, from local garden clubs to the KNPS Wildflower Weekends to the Lucy Braun Workshops at the Pine Mountain Settlement School. He truly loved nature for its beauty, as well as understanding its scientific importance.

An accomplished photographer, his photographs appeared in books, websites, calendars, magazines, and other outlets all over the world, including at the Chicago Botanical Garden, the Audubon Aquarium, the Smithsonian and the Bronx Zoo. He always allowed nonprofit groups free access to his photos provided they were used to educate the public on biodiversity issues.

Tom may be best known for his natural history books. *Kentucky's Last Great Places*, which featured many KHLCF sites, was nominated for the Kentucky Literary Award in non-fiction. His other books include *Gardening for the Birds*, *The Wildflowers and Ferns of Kentucky* with Hazard Community and Technical College's Dr. Wilson Francis, *The Rare Wildflowers of Kentucky* with the Kentucky State Nature Preserves Commission's Deborah White and Marc Evans, *The Gift of Creation—Images from Scripture and Earth* with Duke University's Norman Wirzba, and *How to Find and Photograph Kentucky Wildflowers*. A devout Catholic, he regularly contributed to [*The EcoTheo Review*](#), a nonprofit effort to unite the environmental and religious communities. His most recent book, [*Kentucky, Naturally: the Kentucky Heritage Land Conservation Fund at Work*](#), featuring information and photography on all the sites funded by the KHLCF to date, was published in July 2014 and featured in the August 2014 issue of the *KAS Newsletter*. *Kentucky's Last Great Places* also inspired the Kentucky Educational Television production of the same name in 2003, the most popular program in the network's history and featuring many KHLCF sites. In 2007 Tom created and hosted another popular KET program focusing on native plants, *A Walk Through Kentucky's Wildflowers*.

The KHLCF appreciates all the efforts Tom made in education, conservation, and research on our

conservation areas and encourages all KAS members to follow his example in engagement with Kentucky's citizens on conservation and science.

Selected publications:

Matt A. Bahm, Thomas G. Barnes and Kent C. Jensen. 2014. Evaluation of Herbicides for Control of Reed Canarygrass (*Phalaris arundinacea*). *Natural Areas Journal*, 34(4):459-464.

Joshua K. Adkins, Thomas G. Barnes. 2013. Herbicide Treatment and Timing for Controlling Kentucky Bluegrass (*Poa pratensis*) and Tall Fescue (*Festuca arundinacea*) in Cool Season Grasslands of Central Kentucky, USA. *Natural Areas Journal* 33(1):31-38.

Marvin E. Ruffner and Thomas G. Barnes. 2012. Evaluation of Herbicide and Disking to Control Invasive Bluestems in a South Texas Coastal Prairie. *Rangeland Ecology & Management* 65(3): 277-285.

Matt A. Bahm, Thomas G. Barnes, and Kent C. Jensen. 2011. Herbicide and Fire Effects on Smooth Brome (*Bromus inermis*) and Kentucky Bluegrass (*Poa pratensis*) in Invaded Prairie Remnants. *Invasive Plant Science and Management* 4(2):189-197.

Marvin E. Ruffner and T. G. Barnes. 2010. Natural Grassland Response to Herbicides and Application Timing for Selective Control of Tall Fescue, an Invasive Cool-Season Grass. *Invasive Plant Science and Management* 3(3):219-228.

T. G. Barnes. 2007. Using Herbicides to Rehabilitate Native Grasslands. *Natural Areas Journal*. 27:56-65.

T.G. Barnes. 2004. Strategies to Convert Exotic Grass Pastures to Tall Grass Prairie Communities. *Weed Tech.* 18:1364 – 1370.

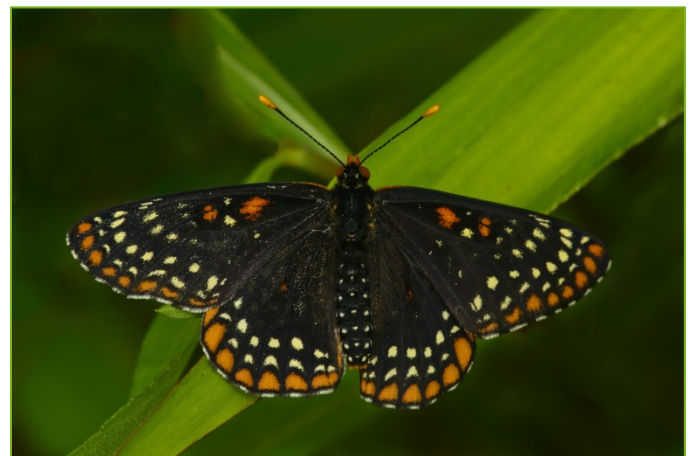
C. Rhoades, T. Barnes, and B. Washburn. 2002. Prescribed fire and herbicide effects on soil processes during barrens restoration. *Restoration Ecology* 10:656-664.

Washburn, B.E., T.G. Barnes, C.C. Rhoades, and R. Remington. 2002. Using imazapic and prescribed fire to enhance native warm season grasslands in Kentucky, USA. *Natural Areas Journal* 22(1):20-27.

Steen-Ash, S, T.G. Barnes, J.T. Hutchinson, J. L. Larkin, B. E. Washburn, J. L. Weese, H.F Yacek, Jr. Characteristics of gray squirrel release sites selected by nuisance wildlife control operators. *Proceedings of the Eighth Eastern Wildlife Damage Management Conference*, Roanoke, Virginia, October 16-19, 1997.



Tygarts SF - photo by Thomas G. Barnes from Kentucky, Naturally book



Baltimore checkerspot - photo by Dr. Thomas G. Barnes from Kentucky, Naturally book



**Dr. Thomas G. Barnes at Brigadoon SNP
photo by Zeb Weese**

Kentucky Girls STEM Collaborative Working for Gender Balance in STEM

Dr. Czarena Crofcheck

Kentucky Girls STEM Collaborative (KGSC) brings together businesses and other organizations and individuals who are committed to informing and motivating girls to pursue careers in science, technology, engineering and mathematics to encourage collaboration and improve inter-program communication. KGSC is a part of the National Girls Collaborative Project, which allows our collaborative access to best practices materials, funds for mini-grants, and some administrative assistance. In addition, this allows our collaborative to gather ideas and advice from collaboratives in other states.

The lead institution is the University of Kentucky, but we have other universities participating from all across Kentucky, including Western Kentucky University, University of Louisville, Northern Kentucky University, Morehead University, Eastern Kentucky University, Murray State University, and Kentucky State University. We have formed smaller regional collaborative units associated with each of these universities in order to have our network reach all across the state. We have members from several important Kentucky industries, including Lexmark, Toyota, Texas Instruments, AT&T, and Lockheed Martin. We also have members from informal education, including the Girl Scouts, 4-H, YMCA, East Kentucky Science Center, and the Kentucky Science Center. We have members from women focused organizations, such as Kentucky Commission on Women, Bluegrass Alliance for Women, and the American Association of University Women. While this list is by no means exhaustive (considering we have 1000 subscribers to our newsletter), the extensive background of the members supports our mission. The more connectivity we can achieve across the state, the easier it will be to make significant advances in gender balance in STEM.

KGSC hosts a website and sends out quarterly newsletters to keep educators, industries, parents, and girls up to date about various STEM opportunities in Kentucky. We also support several girl-serving STEM programs by advertising, finding volunteers, and networking. The programs include Tech Savvy, a full-day program at Kentucky State University, where girls learn about STEM and the soft skills that go with having a successful career. Another program, SciGirls, offers on-line movies and activities about girls in STEM and supports the development of educators to better serve girls interested in STEM. FabFems and the Million Woman Mentors campaign seek to sign-up female mentors from STEM, especially industry, where KGSC focuses on mentors from Kentucky. KGSC held a full-week Lego robotics camps for girls for two years and then trained 16 other educators to be able to have the same camp in additional regions. Specific programs that we have helped to promote are the Kentucky Science Center Youth Summits, Space Trek Summer camp at Morehead University, University of Kentucky Engineering Open House, to name just a few.

KGSC has funded 48 mini-grants since 2008, each approximately \$1000. These funds were used to support programs for girls across the state. These programs all include new and developing collaboration between two or more groups, illustrating KGSC's value of cooperation, communications, and of course collaboration.



2014 KAS Research Competition Winners

<u>Section</u>	<u>Place</u>	<u>Name</u>	<u>Affiliation</u>
<u>GRC</u>	<u>-</u>	<u>GRC</u>	<u>-</u>
Agricultural Sciences	First Place	Congming Zou	University of Kentucky
Agricultural Sciences	Second Place	Alexandra Hitter	Kentucky State University
Agricultural Sciences	Third Place	Grant Curran	Kentucky State University
Anthropology and Sociology	First Place	William Witt	University of Kentucky
Cellular and Molecular Biology	First Place	Victoria Gilkison	Western Kentucky University
Cellular and Molecular Biology	Second Place	Xinyi Zhang	University of Kentucky
Cellular and Molecular Biology	Third Place	Zhaoshuai Wang	University of Kentucky
Chemistry: Analytical/Physical	First Place	Jennifer Naumovitz	Eastern Kentucky University
Chemistry: Analytical/Physical	Second Place	Panae Noomuna	Eastern Kentucky University
Chemistry: Analytical/Physical	Third Place	None	None
Chemistry: Organic/Inorganic	First Place	Tse-Hong Chen	Western Kentucky University
Chemistry: Organic/Inorganic	Second Place	Xin Liu	Western Kentucky University
Chemistry: Organic/Inorganic	Third Place	None	None
Computer and Information Sciences	First Place	Marc Beck	University of Louisville
Computer and Information Sciences	First Place	Duplicate	Duplicate
Computer and Information Sciences	Second Place	Bryan A. Knowles	Western Kentucky University
Computer and Information Sciences	Third Place	None	None
Computer and Information Sciences	Third Place	None	None
Ecology and Environmental Science	First Place	Benjamine Adams	University of Louisville
Ecology and Environmental Science	Second Place	Charlotte Hacker	Western Kentucky University
Ecology and Environmental Science	Third Place	Evan Gora	University of Louisville
Engineering	First Place	Pegah Kakavand	Western Kentucky University
Engineering	Second Place	Chaitanya Deepak Dogga	Murray State University
Engineering	Third Place	Abjulhameed Dawood	Western Kentucky University
Geography	First Place	Kianoosh Ebrahimi	Western Kentucky University
Geography	Second Place	Ellen Barringer	Western Kentucky University
Geology	First Place	Lee Anne Bledsoe	Western Kentucky University
Geology	Second Place	Trenede M. Garrison	University of Kentucky
Health Sciences	First Place	Jennifer Dumaine	Western Kentucky University
Health Sciences	Second Place	Stephen Wechman	University of Louisville
Mathematics	First Place	None	None
Microbiology	First Place	W.A. Weigel	University of Louisville
Microbiology	Second Place	Hitesh Kumar Waghwan	Western Kentucky University
Physiology and Biochemistry	First Place	Qian Chai	University of Kentucky
Physiology and Biochemistry	Second Place	Tulsi Modi	Western Kentucky University
Physiology and Biochemistry	Third Place	Yuechen Zhu	University of Kentucky
Psychology	First Place	Ashley Morris	Morehead State University
Psychology	Second Place	K.D. Nicholson	Morehead State University
Psychology	Third Place	Evan Rollins	Morehead State University

Science Education	First Place	None	None
Science Education	Second Place	None	None
Science Education	Third Place	None	None
Zoology	First Place	Sarah E. Goodyear	Western Kentucky University
Zoology	Second Place	None	None
Zoology	Third Place	None	None
URC Orals		URC Orals	
Agricultural Sciences	First Place	Richard Hulefeld	Kentucky State University
Agricultural Sciences	Second Place	Eugene Blair	Kentucky State University
Agricultural Sciences	Third Place	Chelsea Watts	Kentucky State University
Anthropology and Sociology	First Place	Heidi Vollrath	University of Kentucky
Anthropology and Sociology	Second Place	Kelly Snowden	University of Kentucky
Anthropology and Sociology	Third Place	Holden Hemingway	University of Kentucky
Botany	First Place	William Ciocca	Eastern Kentucky University
Botany	Second Place	None	None
Botany	Third Place	None	None
Cellular and Molecular Biology	First Place	Justin Gibson	Northern Kentucky University
Cellular and Molecular Biology	Second Place	Michael Bale	University of Kentucky
Cellular and Molecular Biology	Third Place	Alyssa Hubbard	Berea College
Chemistry: Analytical/Physical	First Place	Pyae Phyo	Berea College
Chemistry: Analytical/Physical	Second Place	Daniel Graham	Centre College
Chemistry: Analytical/Physical	Third Place	Andrew Sabelhaus	Northern Kentucky University
Chemistry: Organic/Inorganic	First Place	Andres Gasper	Northern Kentucky University
Chemistry: Organic/Inorganic	Second Place	Michael McCann	Berea College
Chemistry: Organic/Inorganic	Third Place	Thuy Do	Northern Kentucky University
Computer and Information Sciences	First Place	Jonathan Byrd	Morehead State University
Computer and Information Sciences	Second Place	None	None
Computer and Information Sciences	Third Place	None	None
Ecology and Environmental Science	First Place	Michon Martin	Berea College
Ecology and Environmental Science	Second Place	Michael Oxendine	Berea College
Ecology and Environmental Science	Third Place	William Hamilton	Western Kentucky University
Engineering	First Place	Jack Wassom	Western Kentucky University
Engineering	Second Place	Travis S. Miller	Morehead State University
Engineering	Third Place	William L. Roach-Barrette	Morehead State University
Geography	First Place	None	None
Geology	First Place	Nathaniel Crockett	Eastern Kentucky University
Geology	Second Place	Jerrad Grider	University of Kentucky
Geology	Third Place	Michaela Brook Curry	Western Kentucky University
Health Sciences	First Place	Sean Shumate	Northern Kentucky University
Health Sciences	Second Place	Josephine Brown	Northern Kentucky University
Health Sciences	Third Place	Chesika Crump	Murray State University
Mathematics	First Place	Larisa Gauze	Morehead State University
Mathematics	Second Place	Brittany Knapmeyer	Morehead State University

Mathematics	Third Place	Kirklyn Phelps	Morehead State University
Microbiology	First Place	Rachael Cicci	Northern Kentucky University
Microbiology	Second Place	Megan Holmes	Eastern Kentucky University
Microbiology	Third Place	Collin Johnson	Northern Kentucky University
Physics and Astronomy	First Place	Mary Spraggs	Western Kentucky University
Physics and Astronomy	Second Place	Clarissa A. Roe	Morehead State University
Physics and Astronomy	Third Place	Alekzander R. Kosakowski	Morehead State University
Physiology and Biochemistry	First Place	Krista Loose	Northern Kentucky University
Physiology and Biochemistry	Second Place	Chi Peng	Berea College
Physiology and Biochemistry	Third Place	Jonathon Webster and Lindsey Snider	Northern Kentucky University
Psychology	First Place	Andrea Merchak and Taylor Walker Smith	Centre College
Psychology	Second Place	Hillary Moore and Leah Storch	Centre College
Psychology	Third Place	Erika Ripperger and Allison Chumbley	Centre College
Science Education	First Place	Chioma Amaechi	Berea College
Science Education	Second Place	Yunpeng Xia	Berea College
Science Education	Third Place	Andrea P. Wilhoite	Morehead State University
Zoology	First Place	Brendan Hall	Northern Kentucky University
Zoology	Second Place	Lauren Ballou	Berea College
Zoology	Third Place	Danielle Frevola	Northern Kentucky University
		POSTERS	
Agricultural Sciences	First Place	Lin Peng	Berea College
Agricultural Sciences	Second Place	Adam Crisologo	Asbury University
Agricultural Sciences	Third Place	Lindsey Morris	Kentucky State University
Anthropology and Sociology	First Place	Lindsey Meador	Northern Kentucky University
Anthropology and Sociology	Second Place	Sydney Henderson and Tiffany Estep	Berea College
Botany	First Place	Benjamin Rasp	Morehead State University
Botany	Second Place	Mary Webb	Morehead State University
Botany	Third Place	Rebecca Graves	Kentucky State University
Cellular and Molecular Biology	First Place	Gabrielle Sevilla	Northern Kentucky University
Cellular and Molecular Biology	Second Place	Nova Arnold	Eastern Kentucky University
Cellular and Molecular Biology	Third Place	Alexis Carey	Transylvania University
Chemistry: Analytical/Physical	First Place	Theresa Ruwe	Northern Kentucky University
Chemistry: Analytical/Physical	Second Place	Frankie Wallace	Western Kentucky University
Chemistry: Analytical/Physical	Third Place	Kyaw Hpone Myint	Berea College
Chemistry: Organic/Inorganic	First Place	Andrew Norris	Berea College
Chemistry: Organic/Inorganic	Second Place	Anthony Boateng	Berea College
Chemistry: Organic/Inorganic	Third Place	Jacob Bonta	Eastern Kentucky University
Computer and Information Science	First Place	Amber Byrum	Bellarmine University
Ecology and Environmental Science	First Place	Chloe Lash	Valparaiso University

Ecology and Environmental Science	Second Place	Christopher Pauley	Asbury University
Ecology and Environmental Science	Third Place	James Brown	Northern Kentucky University
Engineering	First Place	Benjamin Turi	Bellarmino University
Engineering	Second Place	None	None
Engineering	Third Place	None	None
Geology	First Place	Catherine Sosso	Northern Kentucky University
Health Sciences	First Place	Clayton L. Royal	Lindsey Wilson College
Health Sciences	Second Place	Emily Igel	Northern Kentucky University
Health Sciences	Third Place	Sheniqua Austin	Berea College
Microbiology	First Place	W. Jared Brewer	Transylvania University
Microbiology	Second Place	Megan A. Peterson	Morehead State University
Microbiology	Third Place	Blake W. Nelson	Wittenberg University
Physics and Astronomy	First Place	Mikki Wilburn	Transylvania University
Physics and Astronomy	Second Place	Jaren Walden	Western Kentucky University
Physics and Astronomy	Third Place	Carson Price	Western Kentucky University
Physiology and Biochemistry	First Place	Victor Kremser	Morehead State University
Physiology and Biochemistry	Second Place	Dat Tinh Ha	Western Kentucky University
Physiology and Biochemistry	Third Place	Anna Owens	Kentucky Wesleyan College
Psychology	First Place	Sophie AL-Maamary	Berea College
Psychology	Second Place	Carter Baughman and Bryce Macy	Centre College
Psychology	Third Place	Laura Secord	Morehead State University
Science Education	First Place	Kaitlyn Reasoner	Berea College
Science Education	Second Place	Willie Gosnell	Berea College
Science Education	Third Place	Samuel Potter	University of Kentucky
Zoology	First Place	LeighAnne R. Main	Wittenberg University
Zoology	Second Place	Hanna Abe	Berea College
Zoology	Third Place	Brooke Washburn	Morehead State University

KAS 2014 Superlative Award winners

Early Career in Post-Secondary Education

Dr. Cynthia J. Miller
University of Louisville



- Top 4 "Faculty Favorite Award"
- Average student evaluation rating (n=113) – 4.98/5
- Research focus is on Scholarship of Teaching and Learning
- 2014 Research Recognition Award – American Physiological Society
- 7 grants for educational research from a variety of sources
- Editorial Board member – World Journal of Education
- 24 peer-reviewed products since 2011
- Active service for Department, University, and Community

Distinguished College/University Scientist

Dr. Ralph L. Thompson

Berea College



- Over 30 years at Berea College – Developed 20 courses
- 16 grants for undergraduate research – All led to publications
- 71 peer-reviewed botanical articles
- 55 Conference presentations and posters
- Developed Herbarium at Berea College
- 450 specimens in 1980 to 27,000 specimens today
- Helped with Herbarium at the Hancock Biological Station – Murray State University since 1998.

Outstanding College/University Teacher

Dr. Rodney A. King

Western Kentucky University



- Developed 12 courses since 2002
- In the past 4 years alone
- Mentored over a dozen students
- Students received over 30 awards and distinctions
- 12 external and 6 internal grants funded

- Majority geared toward undergraduate research
- 19 peer-reviewed publications
- Over 100 conference presentations/posters with students

Outstanding KAS Service

Jeanne Harris

- 8 years of service as KAS Executive Director
- Oversaw implementation of “Enhanced Affiliates” membership
- Membership grew from 576 in 2007 to over 2600 today
- Coordinated Meetings
 - Quarterly Governing Board
 - Annual Meeting
 - KY Junior Academy of Science Meeting
- Served on sub-committee to revise/update KAS Constitution

NEWS FROM THE KENTUCKY SCIENCE CENTER



1) Scientific Proofs

The Kentucky Science Center is seeking external partners to share content with adult audiences at restaurants, bars, bookstores, etc. If you have a venue that is interested in hosting a fee event or a presentation on a hot-button science topic, email Andrew.spence@louisvilleky.gov. Special emphasis will be given to environmental with our upcoming temporary exhibit on Reusing and Recycling in conjunction with the 2015Yes! Fest. (Year of Environment and Sustainability)

The first public event for the 2015 series will be a Q&A session with author and physicist Alan Lightman 2/16/15 at the Bristol on Bardstown Rd in Louisville. Tickets (\$5) are available here: <http://alanlightman.splashthat.com/>

2) Engineers Week 2015

In what has recently become our largest and most partner-driven Science Celebration,

Engineers Week will take place in our exhibits **February 26-28, 2015**. At present time we have about 100 school group visitors each day that Thursday and Friday, and the late February Saturday is always strong with family groups. The broad theme of this Science Celebration allows for a wide range of floor content. We can just about accommodate *anything*, but most partners choose volunteer facilitated activity stations or “walk-up” displays. Event times will be 10-2 weekdays and 11-4 that Saturday.

3) **PI Day/ Rube Goldberg Day 3.14.15**

New for 2015, the Kentucky Science Center is looking for teams to celebrate PI Day. Especially relevant this year with the date being **3.14.15**, we are looking to host teams throughout the day that Saturday to build and compete with Rube Goldberg machines. Student groups, enthusiast groups, and professional organizations looking for a team-building exercise are all welcome. A variety of gallery spaces and supplies will be made available. The best machine building teams will be invited back for ThunderBlast 2015 (4/18/15).

***All requests for details, questions, and potential contributions can be directed to Andrew Spence, Visitor Experience Coordinator, at Andrew.spence@louisvilleky.gov or [502.560.7129](tel:502.560.7129)

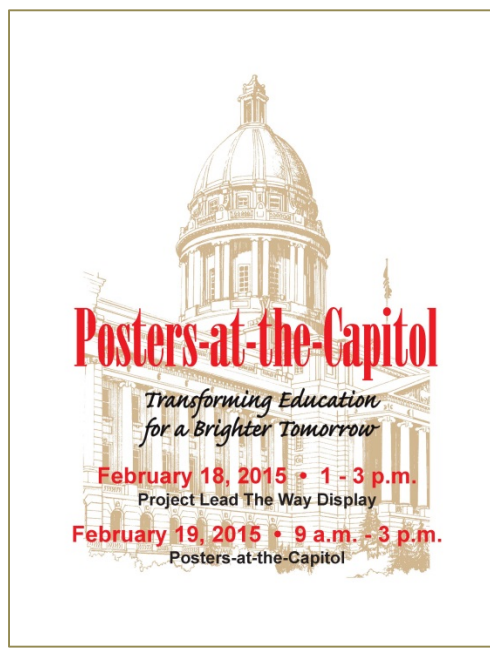
UPCOMING EVENT

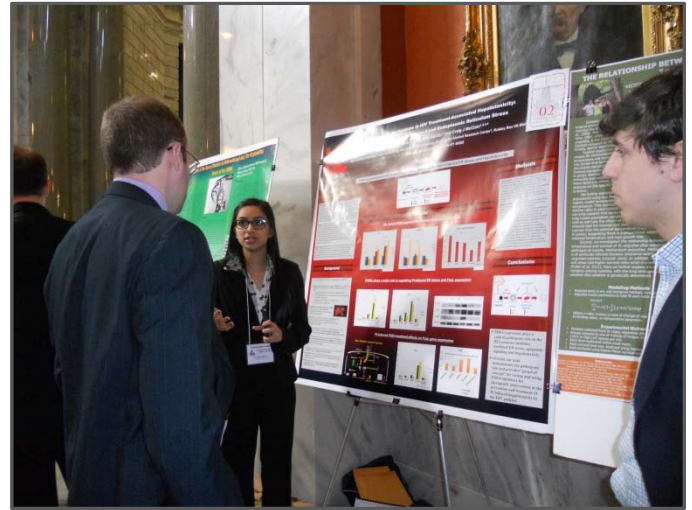
This year marks the fourteenth annual *Posters-at-the-Capitol* program on February 19th. With 129 unique research projects on display, *Posters-at-the-Capitol* helps to increase understanding of the important role undergraduate research plays in the education of our students among those responsible for higher education funding in Kentucky. The program runs from 9:00 a.m. until 3:00 p.m., with special remarks in the Capitol Building Rotunda at 10:45 a.m. from: Lt. Governor Crit Luallen; Murray State University President Robert O. Davies; and other invited guests.

Prior to this year's *Posters-at-the-Capitol* display, a new component in partnership with Project Lead the Way (PLTW) has been added for February 18th. PLTW is a middle school and high school project and problem based contextual learning curriculum used in a number of schools across Kentucky. Through the program's curriculum, participants in the fields of engineering and biomedical sciences are taught skills that lead them to complete a research project. 23 projects will be part of the Pre-*Posters-at-the-Capitol* PLTW Display from 1:00 p.m. until 3:00 p.m.

The public is invited and encouraged to attend this year's *Posters-at-the-Capitol*. More information may be found online at http://campus.murraystate.edu/services/URSA/Posters_2015.html.

Posters-at-the-Capitol is coordinated by a statewide organizing committee and questions may be directed to Jody Cofer Randall, program coordinator, at jcofer@murraystate.edu or Sarah Lee, registration manager, at slee56@murraystate.edu.





Photos from 2014 Posters at the Capitol. Left: James Brown, KAS Member, & Zach Poynter, both from NKU. Right: Priyanka Barve of Uof L.

Photos below are from the Annual Kentucky Academy of Science Meeting.

