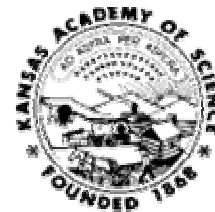


KAS BULLETIN



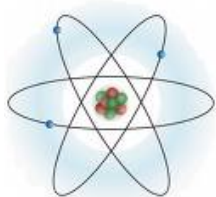
NEWSLETTER OF THE KANSAS ACADEMY OF SCIENCE

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VOL. 33 NO 1

www.washburn.edu/kas/

February, 2008



140th ANNUAL MEETING OF THE KANSAS ACADEMY OF SCIENCE

March 28 and 29, 2008
(FRIDAY AND SATURDAY)

Emporia State University

Science Hall and Memorial Student Union
Emporia, Kansas



MEETING ANNOUNCEMENT

The 140th Annual Meeting of the Kansas Academy of Science is scheduled for March 28 and 29, 2008, at Emporia State University.

Events will include the following:

- Friday afternoon free tour of the Ross Natural History Reservation (1:30-3:30 pm)
- Friday evening banquet (6:00 pm)
- Friday night presentation: **Renewable Energy: Meeting our Energy Challenge** by guest speaker: Stan Bull, Ph.D., of the National Renewable Energy Laboratory, Golden, Colorado
This talk is open to the public (7:30 pm)
- Saturday Ninth Annual Paleontology Symposium (8:00 am to 2:00 pm)
- Saturday other special symposia (8:00 am to 2:00 pm)
- Saturday numerous oral and poster sessions—on a variety of topics including biology, geology, chemistry, engineering, and applied sciences (final times, including when poster authors need to be present for questions and answers, will be posted on the KAS website) (8:00 am to 3:00 pm)
- Saturday Keynote Speech: **Renewable Energy: Potential and Challenges** by Dr. Stan Bull (11:00 am)
- Saturday lunch (12:00 noon)
- Saturday student competition cash awards presentation (3:00 pm)

The registration form, abstract submission guidelines, lodging information, map, directions, and entertainment opportunities can be found on the KAS website. Additional detailed information, including abstracts and session times, will be added regularly to the website.

Participants presenting papers must register by mail in advance. Abstracts are to be submitted online. The deadline for submitting abstracts is **February 29, 2008.**

For participants not presenting papers, the deadline for on-time registration is **March 24, 2008.** This year all registrations are to be submitted by mail.

KAS PARTICIPANTS ARE STRONGLY ENCOURAGED TO REGISTER IN ADVANCE
Late registration begins March 25, 2008, and continues through Saturday morning, March 29. Only late registration fees can be paid on the days of the conference—March 28 and 29—meals may not be purchased after March 24.

WE LOOK FORWARD TO SEEING YOU IN EMPORIA

Eric Trump, President and Meeting Organizer
(etrump@emporia.edu)

Conference Directions: Take I-35 to exit 130 (Merchant St.), and go south.

ABSTRACT SUBMISSION

Abstracts may ONLY be submitted online at:

http://www.washburn.edu/kas/meeting2008/meeting2008_abs_online.html and be no more than 250 words (including authors, departments, and university affiliation) single-spaced. Indicate the presenter with an asterisk (*). Do not abbreviate department or institution names. Do not give city, state, or zip code. Punctuate as shown in the example below. The title in ALL CAPITALS should begin two spaces following the institution name, with no abbreviations in the title.

Abstract Example:

*Cook, N.H., E. Blackwell, A.D. Gasking, Department of Natural Sciences and Mathematics. Lincoln University. IN VITRO EFFECTS OF METHOXYETHYL CARBAMATE ON CHINESE HAMSTER FIBROBLASTS. Our previous studies have reveals the mutagenic potential of methoxyethyl carbamate.....

Abstracts are transmitted as a TEXT files (special formatting will be lost) and will be reformatted after receipt. To indicate italicized words, enclose the words with the special codes [i] [/i]. For superscript and subscript, use the code [super] [/super] and [sub] [/sub], respectively. To show Greek letters, enclose the spelled out Greek letter [alpha], [beta], etc.

Formatting Examples:

Saponins from the flower buds of [i]Buddleja officinalis[/i] was isolated.....

Abundance of CH₃CH₂OH was found....

The synthesis of [alpha]- and [beta]- amino acid derivatives has been.....

You may indicate your preference for the Section (area of interest). We will try to accommodate your request, but papers are groups by meeting organizers.

You may present a poster or oral paper. Posters are limited to 4' x 4'. Oral presentations are limited to 15-20 minutes. Indicate your need of a computer/PowerPoint, overhead projector, or neither. For PowerPoint users, bring your presentation on a CD or flash drive.

Student presenters may optionally compete for awards in B.S., M.S., or Ph. D. levels.

LODGING INFORMATION

To obtain the KAS meeting rate, call the motel's local number and mention the Kansas Academy of Science Meeting when registering.

Best Value Inn

2913 W. HWY 50
Emporia, KS 66801
(620) 342-7567
KAS Meeting Rate \$51.99 (up to 4 people)
(888) 315-2378
www.innworks.com

Guesthouse Inn

2700 W. 18 th Ave.
Emporia, KS 66801
(620) 341-9919
KAS Meeting Rate \$59.00
(800) 21GUEST
www.guesthouseintl.com

America's Comfort Inn

2836 W. 18 th Ave.
Emporia, KS 66801
(620) 342-9700
KAS Meeting Rate \$70.00
(800) CHOICE
www.choicehotels.com

Fairfield Inn

2930 Eaglecrest Dr.
Emporia, KS 66801
(620) 342-4445
KAS Meeting Rate \$79.00
(888) 228-2800
www.fairfieldinn.com
Rate available until Feb. 28, 2008

Holiday Inn Express

2921 W. 18 th Ave.
Emporia, KS 66801
(620) 341-9393
KAS Meeting Rate \$89.00
(800) HOLIDAY
www.hiexpress.com

KEN LASSMAN'S "WILD DOUGLAS COUNTY"

Book Review by Hank Guarisco

A wonderfully insightful book, "Wild Douglas County," was released in late September, 2007. Its author, Ken Lassman, is a fifth-generation, lifelong resident of Douglas County who has written numerous essays on natural cycles in northeastern Kansas, led many nature walks during which he identified a myriad of wild edible plants, and is a founding member of the Kansas Area Watershed Council. The depth and breadth of information on the "wild" aspects of Douglas county Ken has assembled is as amazing as the sensitivity with which he has presented it.

Beginning with an analysis of the Central Irregular Plains Ecoregion and the three subdivisions that occur in the country – the Osage Cuestas, Loess and Glacial Drift Hills, and the Cross Timbers – the author guides us through our local waterways. We are invited to become more aware of our surrounding environment by actively exploring it and keeping a journal. He provides much practical information, such as access points to the Kaw and Wakarusa Rivers. Climate and geological features are also interwoven into the natural history of the area. A cogent, philosophical treatment of time and how it is measured provides the reader with a new perspective.

Perhaps the best way to review this book is to provide a quotation: "Seasons are a continually unfolding partner dance. I marvel at our built environment, knowing that everything, from tire tread, curve of the seat, the arc of water in a drinking fountain, to the size of the gravel on my driveway, has been designed. Everything has durability, and aesthetic. As I look at a prairie or woodland in this area, I am even more in awe about the incredibly efficient and wise mix of the same elements. In contrast with our built environment, the ecosystems around us are not just for us, but for the entire mix of species that inhabit this area. It is not just the mix of different species that amazes; it is how they dance their dances of life together from generation to generation. They do this as individuals, as groupings of the same species, and as partners between different species, in that annual dance, here." (Pg. 35)

Ken invites us to take on a bioregional perspective and "reinhabit our ecoregion," by knowing our local endangered and threatened species and taking appropriate actions, such as helping to control invasive weed species and getting actively involved in local restoration and preservation efforts. That 126-page book gives a wealth of practical suggestions and local resources for following through in several extensive Appendices.

People with a more than passing interest in the world around them should have this book. It is a very well written, delightful work which should interest both residents and nonresidents of Douglas County. "Wild Douglas County" (ISBN: 0-9761773-4-x) was published in Lawrence by Mammoth Publication, 1916 Stratford, Lawrence, KS.

BACKYARD GARDENS SHELTER EUROPE'S ORPHAN SEEDS

Excerpts from Elisabeth Rosenthal, The New York Times, November 27, 2007

Gino Boscherini's neat two-story house – the one with the lawn furniture and old men playing cards out front – does not look like a repository for precious genetic material. But his backyard garden contains unusual variants of several plants: a bean grown only here in the hills overlooking Lake Trasimeno, a special tomato that can be stored for months, a type of pulpy squash that is good for pig feed. Such variants, called land-races, possess unique traits encoded in their genes.



Scientists may need to borrow these traits – the ability to thrive in hotter weather or to resist a particular pest, for example – to safeguard the global food supply in response to a changing climate. As farms have become more commercialized in recent decades and have moved toward growing one or two high-yield crops, the number of varieties globally is quickly diminishing, erasing plant genes at the very moment in history when

they may be most needed. That has left Europe's backyard gardeners and small farmers, like Mr. Boscherini, as the de facto guardians of disappearing fruits, grains, and vegetables.

Three-quarters of biodiversity in crops have been lost in the last century, according to the United Nations Food and Agriculture Organization. In Mexico, only 20% of the corn types that existed in the 1930s exist today. In the United States, 95% of the cabbage varieties and 94% of pea types are gone. Scientists are encouraging farmers to keep planting their traditional crops. The UN and many scientific groups are working to expand seed banks as well. The United Nations International Treaty on Plant Genetic Resources, signed in 2004, created a new global network to collect the seeds of unusual plants and catalog their traits. Scientists and plant breeders can trade these seeds.

TEXAS GROWS GIANT SPIDER WEB

By Hank Guarisco, KAS bulletin editor



Photo by Donna Garde

I guess the giant spider web at Lake Tawakoni State Park, fifty miles east of Dallas, proves that things do grow larger in Texas! In early August 2007, visitors to the park were greeted by an astounding sight – a gigantic spider web 250 feet long and thirty feet high covering trees and understory vegetation (see photo). Many people thought they had inadvertently wandered onto the set of a Hollywood horror film. Word of this unusual phenomenon spread quickly via newspapers and the Internet, as spider experts engaged in armchair debates concerning the possible origin of the web. Some decided it must be a dispersal event.

When weather conditions permit, large numbers of spiders often take to the air on silken parachutes, leaving behind a fine blanket of silk in the aftermath. This “ballooning” behavior enables them to travel quickly and

colonize new locations such as islands. Darwin noted great numbers of ballooning spiders and their silk parachutes on the sails of the Beagle, which was 200 miles from the nearest land at the time.

State park personnel and a Texas Parks & Wildlife biologist took photos of the web and the spider which that they believed created it – a long-jawed spider (*Tetragnatha quatemalensis*). Since this species usually produces characteristic orb webs and the massive Tawakoni web appeared to be a jumble of silken strands, spider experts were not convinced that the long-jawed spiders were responsible for the impressive structure. The armchair debate continued as park personnel invited experts to come down and visit the web.

Heeding the call, I packed my sleeping bag and tent into my Chevy pickup and headed to the state park. After seeing the web, I realized this was no dispersal event, but was indeed created mostly by the long-jawed spiders. Several other species were also involved: funnel web spiders (*Agelenopsis emertoni* and *Barronopsis texana*), cob web spiders (*Theridion glaucescens*), and three other species of orbweavers which build their webs at sundown (*Neoscona crucifera*, *Larinioides cornutus*, and *Metazygia wittfeldae*).

During the day, tens of thousands of long-jawed spiders rested with legs outstretched in the massive web. Each spider was only 1 to 3 inches from its neighbors. A cube, 8 inches on each side, contained 10 adult spiders. They had created an arachnid urban area, complete with a deteriorating downtown. Much of the older webbing contained windrows of dead midges and mosquitoes – remnants of past meals - that had become waterlogged by heavy rains. Large jumping spiders (*Phidippus audax*) resembled miniature tigers as they prowled the web capturing both midges and other spiders.

So why did all these spiders congregate in one location? Were they cooperating to build a giant communal web? People around the world became intrigued. Park personnel received letters and e-mails with possible explanations. One individual in England was convinced the giant web was some form of paranormal phenomenon and suggested we keep our eyes peeled for Sasquatch. Another suggested this was something dangerous and the spiders and their web should be destroyed. A Chinese author of children's books wanted pictures of the web so he could tell the story of how all the spiders came together to build this big web.

Actually, the explanation is quite simple, spiders go where there is an abundant source of food. Heavy rains that pummeled this part of Texas throughout the summer months created a lot of standing water which is the perfect breeding ground for mosquitoes and midges – the long-jawed spiders' favorite prey. At dawn and dusk, there was an audible hum created by the beating wings of countless midges as they rose from the grass and emerged from a pond just behind the giant web. Spiders of more than half a dozen species had converged on this spot, built their webs, and gorged themselves on this insect banquet. Space was limited, so they attached their webs to any available structure, including their neighbors' webs. Funnel web spiders (Agelenidae) and cobweb spiders (Theridiidae) made webs deep within the vegetation, while the orb weavers (Araneidae and Tetragnathidae) spun their characteristic circular webs on the surface and between tree branches. In addition to creating webs, spiders lay down silk draglines everywhere they walk, in much the same manner as mountain climbers use ropes when climbing to prevent nasty falls. The added effect of these activities produced the scene that astounded park visitors.

When I returned to the site 3 weeks later, the food supply had dwindled, large areas of the web were vacant, leaving only scattered pockets of densely packed spiders. This time, they were anything but tolerant of their neighbors. Cannibalism was rampant – females preyed upon other females and males upon slightly smaller spiders. By winter, the web had been destroyed and the spiders were gone. Most spiders died with the advent of freezing temperatures.

Whether they were fond or fearful of spiders, the giant spider web at Lake Tawakoni, Texas captured the interest of people around the globe. Maybe this event will be repeated next spring when young spiderlings will emerge from the thousands of egg sacs that were laid on tree limbs last autumn.

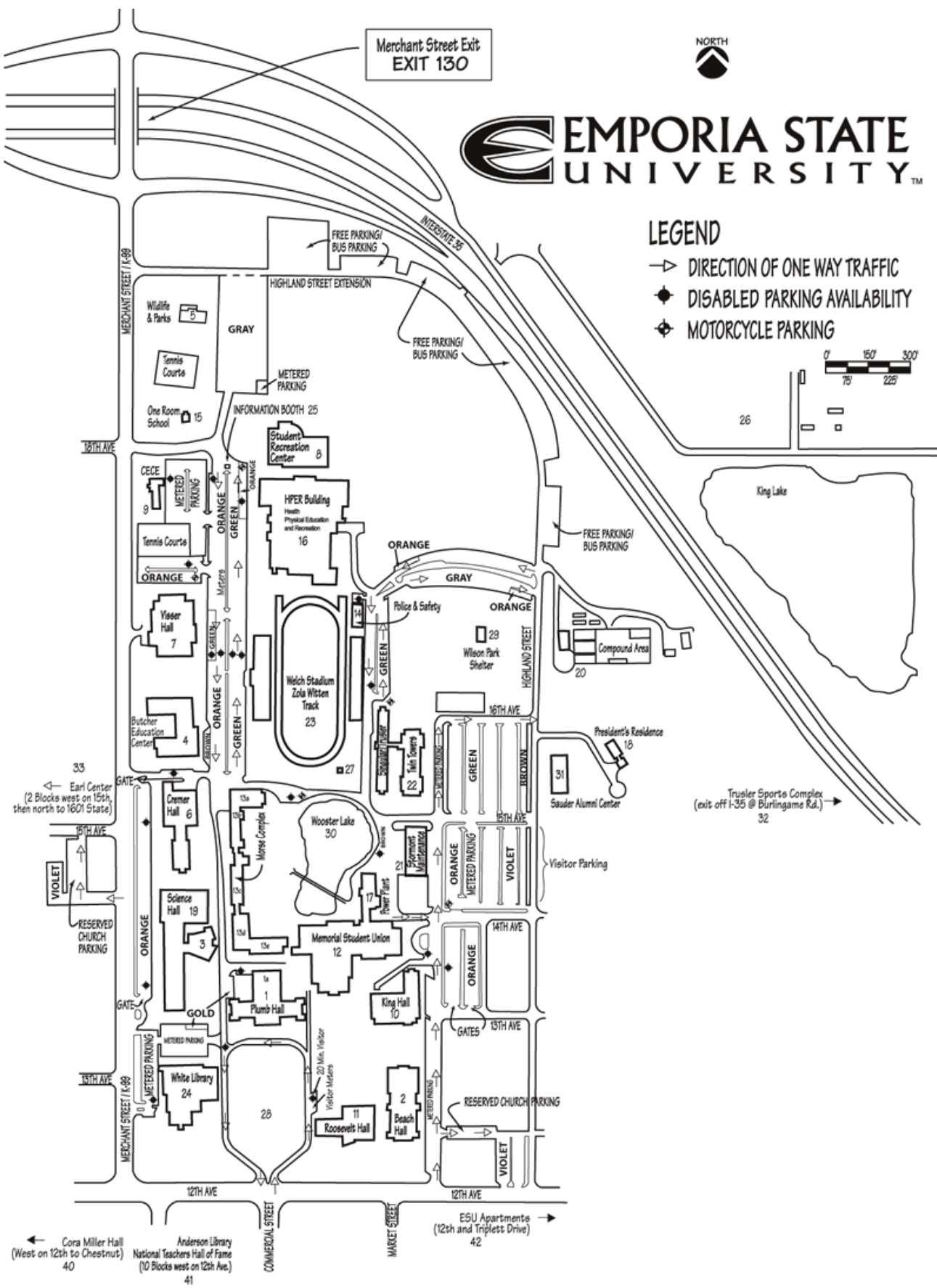
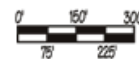
Merchant Street Exit
EXIT 130



EMPORIA STATE UNIVERSITY™

LEGEND

- DIRECTION OF ONE WAY TRAFFIC
- ◆ DISABLED PARKING AVAILABILITY
- ◇ MOTORCYCLE PARKING



← Cora Miller Hall
(West on 12th to Chestnut)
40

Anderson Library
National Teachers Hall of Fame
(10 Blocks west on 12th Ave.)
41

ESU Apartments
(12th and Triplett Drive)
42

Trusler Sports Complex
(exit off I-35 @ Burlingame Rd.)
32



140th Annual Meeting of the Kansas Academy of Science
 March 28 and 29, 2008
 Emporia State University
 Emporia, Kansas

Registration Form

Pre-registration is due before **March 24, 2008**.

The deadline for abstracts is **February 29, 2008**.

No meals may be purchased after March 24.

Name: _____

Last First Middle Initial

Address: _____

Number and Street City State Zip Code

Phone: _____

Home Work Other

Email: _____ Abstract Submitted? Yes No

Can you judge student papers Saturday morning? ___ Are you willing to chair a session? ___

Do you plan to attend Friday's afternoon field trip (free of charge) to the
Ross Natural History Reservation? Yes No

<i>Options</i> Please circle your choices	By March 24	After March 24*	Friday Evening Banquet	Saturday Lunch
KAS Member	\$40.00	\$60.00	\$15.00	\$10.00
Non-Member Includes KAS 1yr membership	\$65.00	\$85.00	\$15.00	\$10.00
KAS Student Presenter Must be pre-registered by March 24	\$10.00	-----	\$7.50	\$5.00
KAS Student Non-Presenter	\$15.00	\$20.00	\$7.50	\$5.00
Vegetarian Meal?				
Total Enclosed			\$	

*Meals can not be purchased

Make checks payable to **KAS**.

Mail payment and form to:

Dr. Eric L. Trump
Campus Box 4030
Emporia State University
1200 Commercial St.
Emporia, KS 66801



KANSAS ACADEMY OF SCIENCE
ATTN: Pieter Berendsen
Kansas Geological Survey,
University of Kansas,
Lawrence, KS 66047

This year's keynote speaker: **Dr. Stanley R. (Stan) Bull**

Associate Director, Renewable Electricity Science and Technology, National Renewable Energy Laboratory and Vice President, Midwest Research Institute

Stan Bull has more than 35 years of experience in energy and related applications including renewable energy, energy efficiency, transportation systems, bioenergy, medical systems, and nondestructive testing. He has experience in leading energy research and development, managing and developing programs, and planning and evaluating technical programs. He leads NREL's RD&D, which emphasizes renewable energy and energy efficiency technologies in support of DOE programs. Dr. Bull has also held university faculty and private sector responsibilities. He has authored approximately 90 publications in diverse fields and technical journals, and presented more than 103 papers at international, national, and other meetings. Dr. Bull has a Ph.D. and M.S. from Stanford University and a B.S. from the University of Missouri-Columbia in Chemical Engineering and Mechanical Engineering. Professional recognition and honors include a Senior Fulbright-Hays Professorship in Grenoble, France, the Faculty-Alumni Award from the University of Missouri-Columbia, and the Secretary of Energy Outstanding Program Manager Award.
