

## PRESIDENT'S MESSAGE

Karen Hummel



On February 21, 2013, snow falls softly, adding to the 10 inches fallen in the past few hours. I sit, comfortably enjoying the view with a cup of tea, securely confident that the pantry, refrigerator and freezer hold necessary provisions for the next few days. Meteorologists show instantaneous and predictive radar, and have provided storm warnings sufficient for area residents to plan for this major snow event.

On February 16, 1863, the Kansas Legislature passed an act establishing Kansas State Agricultural College as the state's Land Grant College. Come with me, in your imagination, to that time in Manhattan, Kansas, 150 years ago. We'll contrast the lifestyle of that time to the comforts we enjoy now.

A fortunate homeowner would live in a frame or limestone home on a street close to Poyntz Avenue. Heat would be provided by wood or coal stove, or fireplace. The kitchen might be detached to isolate the smoke and odors. Candles or coal oil lamps would provide some light in the darkness, although there are no street lamps. Electricity will not come to Manhattan until 1890.

The first ice house will be built in 1884; so food preservation is limited to use of a root cellar or spring house, drying, or canning. Poultry could be kept for fresh eggs and meat. A cow could be kept for milk and butter. Vegetable gardens are common. In 1887, the Fairmont Dairy will provide butter to Manhattan citizens and businesses, but that is years in the future.

In earlier days, there were reports of Isaac Goodnow going on bison hunts with area Kansa Indians. The tribe had a settlement called Blue Earth Village from 1780 to 1830 at the mouth of the Big Blue River, with 1600 inhabitants at its peak. By 1863, the systematic resettlement of all native tribes was nearly complete. Bison herds generally ranged in areas 70 miles or so west of Manhattan. The last recorded bison kill in Riley County occurred in 1863. Railroads will be built across Kansas and remaining bison will be slaughtered within 20 years. Cattle ranching will be common in future years. However, in 1863, meat is commonly acquired by hunting rabbits and other small game.

City water will not be available until 1887. The telephone will be introduced in 1894. The city sewer system will be complete in 1904. Poyntz Avenue will be paved in 1910. Reliable transportation and road systems, storm warning systems, and countless other amenities we take for granted are many years in the future.

One hundred fifty years ago, the land that will become Konza Prairie has been allocated to the railroads, according to the Railroad Act of 1862. The Kansas Pacific Railroad received odd numbered sections within 10 miles of the railroad. The Missouri, Kansas, Texas (Katy) Railroad received even numbered sections within 10 miles of the railroad. (This includes the land currently designated as Konza Prairie.) Any settlers wanting to own this land must purchase it from the railroads. Rail service will not come to Manhattan until 1866.

Nutshell version of the founding of Manhattan: Manhattan was established in 1855, by two Free-State groups originating in, and funded from, the eastern United States. Manhattan Town Association was composed of the settlers organized by the New England Emigrant Aid Company led by Isaac Goodnow; and settlers organized by the Cincinnati and Kansas Land Company, who arrived on the steamboat Hartford, with prefabricated houses and provisions. The New Englanders strongly favored education, and organized their settlement north of Poyntz Avenue. The Cincinnati settlers strongly favored commerce, and set up operations south of Poyntz Avenue. It was established as the main street, and was built wide enough that a horse-drawn buggy could complete a U-turn in a single arc. Poyntz Avenue was not paved nor tempered with gravel or decomposed limestone. There were no sidewalks.

*(Continued on page 2)*

Research

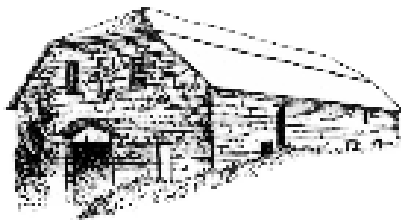
Education

Conservation

Sunday - April 21 2-4 p.m.  
FOKP Spring Event: Dr. Dave Rintoul  
Konza Meeting Hall (see page 8)

Saturdays - Guided Public Tours  
Nature Trail Trailhead - 1-3 p.m.  
(see page 7)

Sunday - June 2  
FOKP Annual Wildflower Walk



April 2013

A Manhattan town map, published in 1856, depicts named streets, avenues, public squares, markets, and parks, and allowed for 9000 residential lots. Manhattan was a planned community, based upon a traditional New England village. The core city configuration is based on this town plan. Isaac Goodnow and the New Englanders had definite ideas regarding community organization and establishment of educational institutions. These founding principles guided early plans and shaped the city's destiny.

By 1863, the population topped 300, with another 500 citizens in the surrounding area. The town boasted a sawmill, a general store, several small specialty stores, a blacksmith shop, a school and meeting hall, Blue Mont College (later to become Kansas State Agricultural College), a hotel, a newspaper, semi-weekly stage coach service, three limestone churches, and a pontoon bridge from Poyntz Avenue across the Big Blue River.

Initiation of the Kansas State Agricultural College (KSAC) as the state land grant institution in 1863 unfolded as follows. In 1858, a delegation composed of I. T. Goodnow, Joseph Denison, and Washington Marlatt, from the New England contingent, along with S. D. Houston, C. E. Blood, Geo. S. Park, S. C. Pomeroy, W. A. McCollom, and T. H. Webb approached the legislative assembly of the Territory of Kansas. They obtained a charter for the Blue Mont Central College Association. A three-story limestone school was built, and Washington Marlatt was designated as Principal. The instruction was described as 'primary and preparatory'.

When the Kansas Legislature selected Manhattan as the site for the land grant college in 1863, Blue Mont College was renamed as Kansas State Agricultural College and the Blue Mont College building was repurposed for use by KSAC. The College opened September 2, 1863, and the first term closed December 1. Fifty-two students were enrolled; twenty-six young men and twenty-six young women. It was the second coeducational college in the United States. The College was also open to freed African citizens (locally known as Negroes), but the first African American student would not graduate until 1899. There is no reference to Native Americans. Haskell Institute was initiated in Lawrence, Kansas, in 1884, dedicated to education of indigenous American Indian children.

The total number of students at Kansas State Agricultural College for the year 1863-64 was 106. Of these, 92 were in the preparatory department. Fifteen were eight to ten years of age, probably to fulfill a prior contract with Blue Mont College. About half studied the higher branches, such as Latin, physiology, and mathematics. Spelling, writing, reading, geography, grammar, and mental arithmetic were available for those not prepared for higher work. Music study was offered and was considered to be an important element in the school and community. General exercises in public speaking and calisthenics were required, and practice in military work was given under the direction of one of the students who had had military experience. The faculty expected to form classes in chemistry, geology, botany, natural philosophy, and mental philosophy before long.

These details from 1863 provide a historical perspective of Manhattan, including the areas that became Konza Prairie Biological Station and Kansas State University. Contemporary Manhattanites owe a debt of gratitude to Isaac Goodnow: because of his vision of order, his persistent fundraising, and his political and collaborative skills, Goodnow played a prime role in the orderly design of Manhattan and the establishment of Kansas State as the Kansas land grant university.

The Konza Prairie lands arrived at their current protected and influential research status by a more circuitous route, with thanks to Lloyd Hulbert, Kathryn Ordway, The Nature Conservancy, the Landon family and others. But that's another story, for another time.

#### Sources:

Given, Charlie. (2004). *History of the Dewey Ranch*. Retrieved February 21, 2013, from <http://keep.konza.ksu.edu/docents/>.

Konza Environmental Education Program, (2013, February 19). *Charlie Given – History of the Dewey Ranch Parts 1-5*. Retrieved February 21, 2013, from <http://www.youtube.com/watch?v=JJNxPgJdR0s>.

Olson, Kevin G. W. (2012). *Frontier Manhattan: Yankee Settlement to Kansas Town, 1854 – 1894*. Lawrence, KS: University Press of Kansas.

Riley County Historical Museum. (2009, November 23). Riley County/Manhattan Timeline 1811 - 2009. Retrieved from <http://www.rileycountyks.gov/index.aspx?NID=906>.

Willard, Julius Terrass. (1940). *History of Kansas State College of Agriculture and Applied Science*. Manhattan, KS: Kansas State College Press.



*Courtesy of the Riley County Historical Society*



## KPBS DIRECTOR John Briggs



Dear Members of the Friends of Konza Prairie,

It is early March and there is still snow on the ground! Not much, but just enough to keep us from conducting our spring burns. The storms and cold weather in February keep us from being able to burn our winter-burned-watersheds. If you are interested in following our burn progress, you can see the status of the burns on a daily basis (usually by 7 am of each day) at: <http://www.doodle.com/7qk2w8bmhzbc4rd>. In addition, if you want to see what has been burned and what watersheds are planned to be burn that information is at: <http://kpbs.konza.ksu.edu/burn%20plan%202013.pdf>

As you are well aware of, burning is one of our primary long-term experiments, and it takes many individuals to conduct our burns. Each year, we host a fire training/ refresher course that allows us to go over how we conduct our burns. On February 23, from 10:00 am to noon, over 50 individuals including 10 undergraduates (the most undergraduate we have ever had!) attended the 2013 Fire Training/Refresher course. In addition to listening to Dr. Gene Towne talk about what we expect of individuals when they are on our burn crew, we also handed out the coveted Crimson Torch Awards which goes to the individuals (and lab) who put in the most hours on our burn crews each year. We have three categories, Docent, Graduate Student, and Lab. Winners of the 2012 Crimson Torch awards were: Myron Calhoun (Docent), Drew Ricketts (Graduate Student) and John Blair (Lab). We are hoping next year we can have an undergraduate category as well, and based upon our sign-up list this year, competition for all categories is in place!

February was also busy on- and off-campus as K-State celebrates 150 years as a land-grant university. It is a good time to reflect on the past and I have been doing that by reading some “old” documents. Below is a quote from one of them:

“The rapidly increasing human population of the earth, together with our rapidly increasing ability to change the earth, is resulting in great changes. We are using water, timber, minerals, and energy at accelerating rates. We are adding many substances to the atmosphere, some of which may result in changes in the earth’s climate. This means that our ability to change the earth is exceeding our understanding of the effects. Thus, there is an urgent need to learn basic ecological principles....”

To me, quotes like this inspire and motivate me to make sure KPBS is a flagship research observatory that will

allow us to address many of the complicated environmental problems our world is facing. But what interests me the most about this quote is the fact that this came from the writings of the first director of KPBS, the late Dr. Lloyd Hulbert in “History and Use of Konza Prairie Research Natural Area” published in *The Prairie Scout*, Volume V, 1985. It is really amazing how farsighted and insightful he was. Not only was Lloyd able to get funding to purchase KPBS, he also created the experimental design that is still in place that allows us to study tallgrass prairie in a changing world! He goes on in this paper and says:

“We need to understand how much of the fluctuation in productivity and in numbers of species of the prairie results from natural causes, such as weather changes, and how much results from human-induced changes. Unless we know, we cannot wisely manage the landscape.”

I often wonder if we will ever have enough information to wisely manage the landscape as humans are modifying the landscape faster than we can study it, and many individuals who control funding are claiming the changes we are experiencing are “normal”! Lloyd ended his paper with these words:

“A great need now is to learn how to make the benefits sustainable in the future. It is a multifaceted task. One part is to understand natural forces so we can work in harmony with, not against, them... The need for increasing our knowledge is all the more imperative because of the rapidly escalating ability of humans to modify the earth. With increasing power goes increasing responsibility. We hope and expect that Konza Prairie will be important in helping us to gain the knowledge we need to be responsible stewards.”

His words encourage me as I try to manage KPBS to develop as one of the finest biological field stations in the world. I encourage everyone to read his article, and I think you will gain a better appreciation and increase admiration for the person responsible for KPBS. He was a visionary.

In closing, I would like to thank you for your continued support to FOKP. As always, please contact me ([jbriggs1@ksu.edu](mailto:jbriggs1@ksu.edu); 785-532-0140) if you have any questions or concerns about KPBS.

--john



## FROM THE STONE HOUSE...

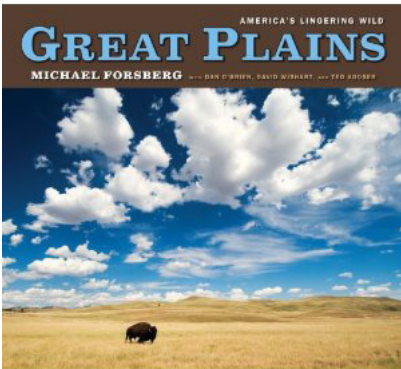
Jill Haukos, Environmental Educator

### “Spring”



I've been assured that spring is indeed coming, if not from the groundhog in Pennsylvania, then maybe more accurately from the bulbs that have peeked through the surface of the soil on the east side of the Hulbert Center. Our winter has been an active one at KEEP. We decided, quite last-minute, to be a site for Kansas Master Naturalist (KMN) training. Because I could not foresee two separate training programs, one for docents and one for KMN, I decided to combine them.

The KMN program is quite different from the traditional docent training program so some changes needed to be made. The spring portion of training focuses on broad biological themes such as botany, mammalogy, ornithology, and ichthyology. The great part about having training on Konza is the availability of experts from KSU and the access of the prairie for field trips. Our line-up of speakers is truly an A-Team that would be difficult to replicate elsewhere. The fall training in September will be specific to the KEEP and will prepare our nascent docents for Konza-specific activities. Current docents are getting in-service credit for attending the Saturday morning training sessions and are also getting exposure to some new material. So far it's been very successful, and we look forward to continuing the program in future years.



Many of you know about Michael Forsberg; he's a very well-known nature photographer who lent his photos to the book *Great Plains: America's Lingerin Wild*. His photos are gorgeous and the essays accompanying them are riveting. Two years ago I had the pleasure of hearing Mike tell stories behind some of the photos from this book, and was again delighted when he visited Konza Prairie and Kansas State University on April 4th. I hope many of you were able to enjoy his presentation, and I encourage you to read his book.

This late in the winter, the availability of food becomes scarce. While I was out walking with some docents along the Butterfly Hill trail, we noticed some coyotes. There were a couple of unusual things about those coyotes. One, they were out in the middle of the day. Two, they seemed to be eating something. Since we had Joe Mosier along, we got a tutorial on what was happening. Those coyotes were scavenging bison droppings. They were

picking them apart and getting whatever nutrition they could from within the droppings. Joe said that's not unusual during the leanest parts of late winter, and that coyotes are common sights around piles of horse manure. As the owner of a horse boarding facility with a substantial manure pile, that comment sure got my attention. Coyotes are well-known as survivors and we were witness to that.

Don't despair. Spring is right around the corner and then we'll start counting the number of bison calves hitting the ground. Until then, I'll see you on the prairie!



## Spring Cleaning: Hulbert Center Work Days

Jill Haukos, Environmental Educator

KEEP needs your help cleaning and organizing the Hulbert Center – both inside and out – as our Spring activities get in full swing. FOKP members and docents are welcome to participate. Docents will receive credit for leading an activity. Please call Jill Haukos or Jan Evans (785-587-0381) and let them know when you plan to attend. Work day activity starts at 10 a.m. on the following dates:

**Thursday, April 11<sup>th</sup>** - Cleaning out the flower beds

**Thursday, April 18<sup>th</sup>** - Organizing the collection/ice room – organizing rubber boots, adding duct tape to new boots, cleaning out the room to make it functional

**Thursday, April 25<sup>th</sup>** - Organizing and redecorating the lab – cleaning out the cabinets and drawers, putting up new posters, cleaning out the closet

Colleen Hampton is a graduate of the 2008 KEEP Docent group and since then has established herself as a committed volunteer. She became a Master Docent in four years, which is the minimum required for the title. In 2012 she completed 22 activities including leading tours of the Bison Loop, Butterfly Hill hikes, and Nature Trail hikes. She is a very valuable asset to the Konza Environmental Education Program and we salute her here.

#### **What motivated you to become a Konza Prairie docent?**

Back in 1991-1995, I had a research technician position at K-State and one of my duties was to collect samples out on Konza Prairie. When that position ended, I remember thinking that one of the things I would miss most was not being able to get out on Konza Prairie (the non-public part of Konza!) anymore. When I heard of the Docent program, I thought that here was my chance to visit Konza again! Plus, with my teaching and ecological background, becoming a Docent seemed like a good use of my time!

#### **What are some of your hobbies & interests?**

My hobbies primarily revolve around gardening (vegetables, flowers, trees, plus hydroponics and winter gardening). I am a very active Riley County Extension Master Gardener and enjoy helping put on the Annual Garden Tour each June. I am also interested in Arts & Crafts, mission-style architecture and visiting second-hand shops for items from the early 1900s. I would be remiss if I didn't also mention my family, which includes my ever-patient husband Kent, three adult children, and three grandchildren (the newest ones being twins born this past December) who live in the Manhattan area. I can't wait to show them Konza Prairie some day!

#### **What has been the best part of being a volunteer at Konza Prairie?**

Besides being able to visit the part of the Konza that is off-limits to the general public and getting that "nature-fix," I enjoy meeting the wide variety of people that come out there. Typically I work with older children and adults, but this past summer I tried my hand at leading hikes with much younger children and found that I enjoyed working with them also. I also like that the Docent Program has incentives to stay active and participate. Plus, I get to talk about science to people who are at least somewhat interested in the topic!

#### **What brings you the most joy in your life?**

Being with my family, having my hands in the dirt planting stuff, being outside in nature, sharing my love of science with others, and driving my yellow VW Bug! Briefly describe your "life story."

I grew up in Andale, KS, in the southwest corner of town. There were wheat fields to the south and west of my house, and I spent a lot of time outdoors as a child. If Dad came in and saw us watching TV in the evening, he would say "Turn off that TV and get outside!" I went to Newman University in Wichita for my undergrad degree. Dad told us what

## **DOCENT SPOTLIGHT**

### **Colleen Hampton**

our careers were going to be: the 2 girls would be medical technologists, and the 2 boys would be engineers.

In the fall of my sophomore year, I took an Environmental Biology class, and it changed my life. I decided that I couldn't be stuck working indoors in a hospital lab; so I changed my major to Biology. My husband and I then attended Fort Hays State University where we got our M.S. degrees in Biology. Mine was focused on plant ecology and range management, while his was geared more towards fisheries biology. In grad school, my major professor mentioned that I was well suited to being a community college instructor, but I dismissed the idea because teachers don't make any money! We then moved to Manhattan where my new lab research assistant job paid 40% less than beginning high school teachers were making. After two years, I enrolled at K-State and obtained a B.S. degree in Secondary Education, meaning I could teach any of the natural sciences (Biology, Chemistry, Physics, Earth Science, etc.) in grades 5-12. However, it was December when I graduated, so I enrolled in graduate coursework and earned my M.S. degree in Secondary Ed 17 months later. I was now overqualified and lacked the experience to teach science at even the high school level. I got another research position at K-State where we took samples out at Konza every month. When the funding ran out for that position, a chemistry teaching position at Barton Community College in Junction City fell into my lap. Thus began my 15-year adjunct instructor career teaching a variety of science classes at the community college level.

Eventually I decided I should use my secondary education degrees and taught at the high school level for seven years. When I decided that I'd had enough of administrators and their policies, I resigned. Two months later I was offered a full-time biology instructor position at Barton Community College. I teach General Biology courses and an Environmental Science course each semester. I've gotten pretty used to my life being divided into residing in Great Bend from Sunday evening through Friday afternoon, and back home to Manhattan on the weekends, breaks, and summers. I thoroughly enjoy teaching at this level, and it allows me to spend time during the summer being a Konza docent and a Manhattan Community Gardens gardener! When I first started at the college, they used to ask me "When are you moving to Great Bend?" My immediate answer was always "Never!" In my mind I was thinking "my husband couldn't find a research technician job here, and there's no Konza Prairie!" Cheyenne Bottoms is nice, but it's nothing like Konza Prairie!



Photo by Jill Hankes

# Docents Recognized at January Roundup

Jill Haukos, Environmental Educator

The Annual KEEP Docent Roundup is a time to reflect on the previous year's activities and plan for the upcoming year. Over 70 people attended the 2012 Roundup on January 12<sup>th</sup>, and we were pleased to have heard an exceptional presentation by KSU Distinguished Professor and Konza Prairie researcher, Dr. Walter Dodds. Dr. Dodds spoke about the impact of drought on prairie streams and how streams are changing due to human influence. His talk was recorded and is available on the Konza Prairie YouTube channel at <http://www.youtube.com/watch?v=hmzBGHMjPoU>.

Docent Roundup is also a time to present awards! We have an amazing group of docents who support Konza Prairie and the education program. If you get a chance, please thank a docent for all their hard work and dedication to teaching the children of the Flint Hills about the tallgrass prairie. We couldn't do this without them!



Photo by Chad Hedinger

The following docents earned the **“Quality Docent”** designation for leading 3 or more KEEP activities and attending 3 or more in-service/continuing education functions: Earl Allen, Diane Barker, Nancy Calhoun, Dru Clarke, Mike Clarke, Bob Davis, Clyde Ferguson, Jerry Freeze, Carol Gadbury, Charlie Given, Nancy Goulden, Colleen Hampton, Chod Hedinger, Ted Hopkins, Karen Hummel, Jim Johnson, Clancey Livingston, Larry Loomis, Joe Mosier, Cindy Quinlan, Sue Smith, Doreen Towne.

A KEEP **“Master Docent”** is one who has earned the Quality Docent designation for at least 5 years. The previous award category called “Long-Term Docent” has been incorporated into this designation. Docents previously awarded the Long-Term Docent, as well as two new Master Docents, were recognized. KEEP Master Docents are: Earl Allen, Diane Baker, Doris Burnett, Chuck Bussing, Myron Calhoun, Nancy Calhoun, Bob Davis, Clyde Ferguson, Charlie Given, Nancy Goulden, Colleen Hampton, Chod Hedinger, Hoogy Hoogheem, Ted Hopkins, Karen Hummel, Sue Hunt, Larry Loomis, Jim Morrill, Ann Murphy, Verlyn Richards, Valerie Wright.

Our two biggest awards are KEEP's **“Konza Teacher of the Year”** and **“Docent of the Year.”**



Photo by Chad Hedinger

This year our Konza Teacher of the Year went to Joe Gelroth, 5th grade teacher from Woodrow Wilson Elementary.



Photo by Chad Hedinger

Our Docent of the Year was Joe Mosier, who led or assisted with an amazing 51 activities in 2012!

# PRAIRIE-CHICKENS

Jan Evans, Education Program Assistant



## Opportunity to View Prairie-chickens at Konza Prairie

Well, it's that time of year when the prairie wakes up after a winter's sleep. We yearn to get outside and become part of the prairie's awakening. What better way than to wake up REALLY early and see the age-old mating ritual of the Greater Prairie-chicken?

Each spring male Greater Prairie-chickens (*Tympanicus cupido*) do an elaborate courtship dance hoping to impress female prairie-chickens. This dance, called "booming," includes unique gobbling sounds, foot stomping, head bobbing, and wing-spreading. You will find booming prairie-chickens on a "lek" or "booming ground." Already this year, male prairie-chickens have been spotted on a Konza Prairie lek.

Guided viewing opportunities are available through the Konza Environmental Education Program (KEEP). Last year four docents took 35 visitors out to our observation blind, which seats up to 8 visitors and 1 docent guide, to watch these fascinating creatures. Tours are led Thursday, Friday, Saturday and Sunday mornings, from March 21<sup>st</sup> to April 21<sup>st</sup>. A charge of \$25 per person supports KEEP. For more detailed information, visit our website at <http://keep.konza.ksu.edu/visit/blind.htm>.

We still have plenty of room if you like to get up early (5:30AM!). Please contact Jan Evans, Education Program Assistant, to reserve your seat in the observation blind.  
Telephone: (785) 587-0381 Email: [keeped@ksu.edu](mailto:keeped@ksu.edu)



Photos by Chad Hedinger



## Konza Prairie to Offer Guided Public Hikes

Compiled by Annie Baker, FOKP Board

Have you ever hiked the Nature Trail at Konza Prairie and found yourself wondering about the tallgrass prairie around you? Perhaps you wondered about geology, as you climbed over limestone on your way up the big hill, or about early settlers, as you explored the Hokanson Homestead site, or about botany, as you took pictures of a colorful wildflower?

If you are interested in walking the trail and talking with a Konza Prairie naturalist along the way, join us for "Saturdays on Konza," a new opportunity available to the public every Saturday. Meet at the trailhead at 1 p.m. Expect a relatively vigorous hike on the 2.6-mile loop for about two hours, where you can get your biology, geology, and history questions answered or simply enjoy a hike with friends.

Konza Prairie docents have been planning and training for "Saturdays on Konza" since December, and publicity went out the last week of February. On Saturday, March 2, docents Earl Allen and Jerry Freeze lead our first group of six hikers!

We welcome you, your family and friends, to incorporate a regular Saturday afternoon or morning hike into your weekly schedule. Reservations are not required. There is a \$2 trail use fee. If you have questions or need directions, please call Jill Haukos, KPBS environmental educator, at 785-587-0381.



**WHAT:** Annual FOKP Spring Event  
**WHEN:** Sunday, April 21, 2013, 2:00 to 4:00 p.m.  
**WHERE:** Konza Meeting Hall, “The Barn”  
Konza Prairie Biological Station

**2:00 p.m. PROGRAM:**

***“Getting a Sense of Place and Time from Grassland Birds”***

Dr. Dave Rintoul, Associate Professor, Division of Biology, Kansas State University

Grassland birds, like all birds, carry an isotopic signature in their feathers that allows us to determine where they have been. But studies of feathers from birds from prairies revealed that we can also learn when they were in those places. This temporal information depends on some unusual characteristics of tallgrass prairie ecosystems.

Dr. Rintoul will talk about this phenomenon, the discovery of which came from feathers collected during a bird-banding study on Fort Riley, Kansas. You’ll hear about how studies of feather isotopes can tell us a lot about prairie ecosystem processes, hear about some of the constraints for a bird-banding program in an open and windy biome, and see some great photos of birds.



*Grasshopper sparrow - Photo by Dave Rintoul*



*Scissor-tailed flycatcher - Photo by Dave Rintoul*

**3:00 p.m.**

**SOCIAL:** Cookies and Conversation

RSVP not required. FOKP merchandise will be for sale.





## Restoration Research at KPBS

From Research Focus, [http://kpbs.konza.ksu.edu/research\\_focus.html](http://kpbs.konza.ksu.edu/research_focus.html)

The goal of restoration ecology is to repair the diversity and dynamics of ecosystems degraded by human activities, but also presents a valuable opportunity for basic research aimed at testing ecological theory. Restoration studies in tallgrass prairie are particularly timely because human activities have resulted in widespread loss and degradation of this ecosystem. The nearly irreversible nature of plant composition once established from seed mixtures underscores the critical need to understand factors influencing diversity and functional response (above and below ground) of restored systems at the onset, over the long term, and in response to global change.

Restoration research at KPBS aims to test and develop basic hypotheses in ecology, while striving to address applied questions related to improving the structure, function, and sustainability of restored tallgrass prairie systems. Restoration research spans plant, soil, and ecosystem response to disturbance and subsequent recovery through ecological restoration, with an emphasis on the conversion of cropland to native grassland. Our approach to understanding potential feedbacks between plant community development and recovery of soil structure and function in restored systems has been largely experimental with the goal of using this information to guide restoration and advance ecological theory.

In 1998, the first restoration experiment was established to evaluate the role of soil resource availability and heterogeneity in the restoration of plant community structure and ecosystem processes (Baer et al. Ecology 2003, Baer et al. Oecologia 2004, Baer et al. Restoration Ecology 2005, Baer and Blair Ecology 2008). This experimental restoration manipulates two factors known to influence plant diversity in native prairie (i.e., soil depth and nitrogen availability). Results from this work have demonstrated that nutrient availability is a strong determinant of diversity by increasing dominance of grasses at the expense of other species that contribute most diversity. In the early years of this experiment, reducing available nitrogen in the soil reduced the presence of non-native species and promoted diversity. Longer-term studies have documented significant increases in soil carbon and nitrogen over time, but no differences in root biomass or productivity in contrasting soil fertility treatments due to increasing abundance of legumes in nitrogen-reduced soil.



*Photo by Sara Baer*

A second restoration experiment was established in an agricultural field at KPBS in 2005. This experiment examines consequences of human decisions in restoration, specifically the selection of dominant grass source populations (i.e., cultivar vs. locally collected seed sources), used in prairie restoration on leaf-level processes, mutualistic associations, root dynamics, competitive interactions, community structure, and ecosystem processes. The premise of this experiment is that if cultivars are selected and bred for traits such as high biomass production, reproductive output, and drought resistance, then these sources may be prairie2competitively superior to the non-cultivar (local ecotype) sources. This is particularly relevant to the success of tallgrass prairie restorations, as diverse communities can be difficult to achieve when grasses dominate these restored systems. The experimental design consists of plots sown with either cultivars or locally collected sources of the dominant grasses. A parallel experiment was also set up in Belleville, Illinois, to generalize responses across a precipitation gradient. A third and related set of cultivar and non-cultivar plots was established in Carbondale, Illinois, to intensively monitor physiological, population, community, and ecosystem changes during restoration with these different source populations. Thus far, cultivars exhibit different root architecture (i.e., greater root length, surface area, and volume) than non-cultivars of the grasses (Klopf and Baer

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Restoration Ecology 2009), and cultivars show equivalent or enhance physiological performance that non-cultivars (Lambert et al. Restoration Ecology submitted). Whether these traits scale to affect community structure and ecosystem function will be investigated over the long term.

Restoring tallgrass prairie plant communities in agricultural fields at KPBS will be ongoing. We aim to establish a “chronosequence” of restorations using similar species and techniques over the long term to examine whether inter-annual variation in environmental conditions is a strong organizing force on community assembly. Furthermore, the chronological sequence of restorations with controlled factors of soil type, land-use history, seeding rates, species pools and management can be used to more accurately quantify belowground recovery from disturbance relative to other chronosequence studies. Understanding the role of inter-annual abiotic and biotic variation on the restoration of plant community structure and ecosystem function will help us forecast these restored systems response to environmental change and broadens the relevance of research at KPBS to regions where restorations constitute more grassland area than native prairie that has never been cultivated.

Restoration research at KPBS has been referenced in two books [*Foundations of Restoration Ecology* by Falk et al. (eds.) 2007; *Grasslands and Grassland Ecology*, D. J. Gibson, 2009] and multiple high profile scientific journals including *Nature* (Harpole & Tilman 2007), Proceedings of the *National Academy of Sciences of the United States* (Suding et al. 2005), *Frontiers in Ecology and the Environment* (Johnston et al. 2004), and *BioScience* (Turner et al 2003). Restoration research at KPBS was profiled the feature article “Prairie revival: Researchers put restoration to the test” in *Science News* [December 15, 2007] and an article entitled “Restoration drama: the science of ecology is helping to bring ecosystem services back to Market” published in *The Economist* [August 8, 2002].

## Watching Wildlife on the Prairie

Jill Haukos, Environmental Educator



Docent Training on Feb. 28, 2013 - Photo by Jill Haukos

Imagine hiking the Konza Prairie Nature Trail. When you finish someone asks, “What did you see?” and you answer, “Rolling hills and green grass.” Well, you may have missed the collared lizard on the rock, the red-headed woodpecker flying through the trees, and the turkey vulture soaring overhead. People who are skilled at observing wildlife have had someone in their lives who taught them to see what may be easily missed. A new K-12 activity, “Watching Wildlife on the

Prairie,” seeks to teach kids to move quietly through a natural area using their sight and hearing to make observations.

Learning from three different habitat types (grassland, shrubland, and gallery forest/riparian area), children will spend 15 minutes in each habitat with two students watching and listening and one student recording. When they switch habitats, they will switch places making observations and taking notes. At the end of the exercise, students will compare and note differences in the number of observations made between habitats. Habitat data will be compiled by KEEP to indicate the importance of effective record-keeping and long-term data collection. We anticipate a new group of quiet, attentive students who have the ability to observe the natural world around them, and we look forward to seeing what kind of data they will collect.

Thirty Eagle Optics binoculars were acquired using funds awarded from the Carolyn F. Peine Charitable Foundation in 2012. These binoculars will be used during “Watching Wildlife on the Prairie,” as well as during other educational programs and docent training sessions.

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