



# Tallgrass Gazette

Winter 2007

"The Newsletter for Docents and by Docents"

## The Long-Term Ecological Research Network

The Long-Term Ecological Research (LTER) Program was established in 1980 by the National Science Foundation (NSF) to support research on long-term ecological phenomena. The Network now consists of 26 sites representing diverse ecosystems worldwide including deserts, estuaries, lakes, oceans, coral reefs, prairies, forests, alpine and Arctic tundra, urban areas, and production agriculture. **Konza Prairie was one of six original LTER sites selected by NSF in 1981.**

As a global leader in broad-scale research, the US LTER Network establishes linkages with long-term ecological research programs in the US and abroad, including the International LTER Network. Major funding and support for the LTER Network is provided in various forms by the National Science Foundation, the USDA Forest Service, National Aeronautics and Space Administration, US Geological Survey, Environmental Protection Agency, USDA Agricultural Research Service, US Department of the Interior, and The Nature Conservancy.



LTER Network Sites

**The Mission of the LTER Network** is to provide the scientific community, policy makers, and society with the knowledge and predictive understanding necessary to conserve, protect, and manage the nation's ecosystems, their biodiversity, and the services they provide. Data on five core research themes, central to LTER Network science, are collected to establish and understand the existing conditions in an ecosystem before any experimental manipulation is begun. The common focus on core areas facilitates comparison among and across sites in the Network. The five core areas are Primary Production, Population Studies, Movement of Organic Matter, Movement of Inorganic Matter, and Disturbance Patterns. Ecology is a data-rich discipline that covers vast time and geographic scales. A major goal of the LTER Network is to improve and increase ecological knowledge by providing fast, effective, and open access to LTER data among scientists, resource managers, and policy makers.

**The Konza LTER Program** is built upon a long-term database on ecological patterns and processes derived from a fully replicated watershed-level experimental design since 1977. Konza Prairie's central hypothesis is that fire, grazing and climatic variability are essential and interactive factors responsible for the structure and function of tallgrass prairie. Pre-LTER research on Konza Prairie extends selected datasets back more than 28 years. The Konza LTER Program currently maintains over 70 long-term datasets in association with ongoing long-term experiments, and many more research activities of shorter duration.

**A primary goal of the LTER Network** is to provide a wide range of educational opportunities for graduate and undergraduate students at participating institutions. In 1998, the LTER program developed a special initiative aimed at utilizing LTER resources at each site to enhance hands-on science learning for K-12 students. Konza Prairie was one of twelve initial LTER sites funded by NSF to begin Schoolyard LTER.

**Through LTER's Schoolyard program**, scientists, teachers, and students are integrating LTER basic research into a range of hands-on learning experiences. The program includes student enrichment through hands-on laboratory experiments and field data collection and management methods, K-12 teacher professional development, preparing teachers to use scientific protocols, development of instructional materials, integration of scientific protocols and real data sets.

### Resources:

Konza Prairie LTER Program, <http://www.konza.ksu.edu/konza/>

U.S. Long Term Ecological Research (LTER) Network, <http://www.lternet.edu/>

# Prairie Patter

by *Dr. Valerie Wright, Environmental Educator and Naturalist*

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The Tenth Anniversary of KEEP has been celebrated. We owe many thanks to the 10th Anniversary Committee made up of Larry Loomis (Chair), Sue Hunt, Ann Murphy, Cindy Quinlan, and Joc Baker for the great activities they planned and carried out. The Fall Docent Roundup at Hokanson Homestead in October and the Reception at the Education Center in November were particularly pleasant events with excellent attendance. We visited with old friends not seen for some time as well as loyal supporters.

For me, the highlight of the Fall Roundup was the road sign placed on the shed at Hokanson Homestead declaring the "Wright Way" with an arrow pointing to the beginning of the Kings Creek Trail. And Chod Hedinger's cobbler is always a favorite with everyone. It was a lovely afternoon and many people walked to Hokanson on the Nature Trail. At the Reception Eva Horne and Dave Hartnett both made nice comments about KEEP. Darren Gunderson, a long-term teacher associated with KEEP and Chitra Harris, one of the new teachers in 2006, each told of their experiences. There were good refreshments and a big anniversary cake.

November 5th nine docents came out for the Fall Plant Inventory and Seed Collection Day and three others collected seed at later dates. I was able to tell the graduate students from Southern Illinois University involved in the prairie restoration project at KPBS that we had filled their quota for local grass seed. They were very grateful and asked me to thank the volunteers for them. Bill Marshall participated in the seed collection several times and also cleaned up the ranch house gardens for us. Karen Hummel also collected seed and has been volunteering time to help us with some KEEP administrative jobs.

This January Ted Hopkins led three other docents (Gary Mott, Ann Murphy, Verlyn Richards) in the annual "pinned grasshopper put-away party". Annie and I organized a winter workday at the Education Center the following week. There was a lot to do and twenty volunteers showed up to do it. Maybe they came for the hearty soup at lunch! We accomplished in one day what it would have taken several days for us to finish. Thanks to all who participated.

At the 10th Annual Docent Roundup on January 27, 43 docents saw Annie and me in the nifty bison hats we found in Estes Park, Colorado, during the LTER All Scientists Meeting last September. Even "experienced" docents groaned at the practical test of their naturalist abilities at Roundup, but hopefully learned from it as well. Dr. Tony Joern enlightened us on his studies of population ecology with the native grazers (grasshoppers). Did you know that only about ten species of grasshoppers are actually considered "pests" of crops and rangeland? And that fires (spring burns) have less impact on grasshopper populations than grazing? If you would like to see the PowerPoint with graphs and data, come in some time to view it here. The file is too large to send via e-mail.

Of course, Sue Hunt is our ubiquitous helper, working behind the scenes on so many projects! Konza Prairie Docents do so much for KPBS and KEEP, I can't say thank you enough!



Docent Workday Lunch-time



Testing Naturalist Abilities at Docent Roundup

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## Spotlight! on Nancy Golden

By Annie Baker

Nancy Goulden graduated from the Docent Program in 2001 and has since become an integral asset to KEEP. From Docent of the Year recognition in 2002-2003 to earning the Leadership Award in 2005-2006, Nancy is now on her way to securing Long-term Leader status – she has guided an average of 27 groups each year since 2002!

Nancy was born in Sedan, Kansas, and grew up in El Dorado, Kansas. Special memories of her childhood include exploring her Grandmother's farm. She heralded the farm as "the most magical place to run around, explore, learn the names of trees and plants and visit the farm animals." In her childhood, insects were also of special interest, and she treasured her Extension Service insect identification book. In one adventure, Nancy remembers her Grandmother killing a Prairie Rattlesnake on a neighbor's front step and harvesting the rattles!



After graduating from El Dorado High School, Nancy pursued Biology and Speech Communication from El Dorado Junior College and Emporia State University. Nancy received her BS, as well as Secondary Teaching Certifications in Science, English, Speech and History. She then received a MA from Villanova University in Theatre History and Literature and an EDD from Northern Arizona University in Classroom Communication.

Nancy's career spanned 35 years in which she taught middle school science and university rhetoric/communication for the longest periods. Her teaching experience includes 4th grade through graduate school students in English, Speech, History, General Science and Rhetoric/Communication. She moved from Kansas to Indiana, Connecticut, Pennsylvania, and Missouri. She finished her formal career as Director of Public Speaking with K-State Department of Rhetoric/Communication. At K-State, Nancy mentored approximately 25 graduate students each year, planned for the 50 section Public Speaking course and taught many other graduate and undergraduate Rhetoric/Communication courses.

Nancy became a Konza Prairie Docent after retirement and knew she was "home." She especially enjoys guiding hikes and the annual Wildflower Walk, and helping with the Grasshopper Inventory and the Fire Reversal Study. Plant taxonomy has become her passion and area of expertise. She is actively involved in Phenology, identifying the first bloom of plants throughout the growing season, and helped compile the Konza-Prairie-specific color photographs and text descriptions in the docent plant notebooks available in the Education Center.

In addition to her commitment to KEEP, Nancy also enjoys participating on the Friends of Konza Prairie Board and the Kansas Native Plant Society Board. She is a member of the First Christian Church, loves to read, and enjoys nature photography. She also travels to California to visit families of sons Marc and Mike.



# Aggressive Behavior Makes Male Prairie Chickens Sexy

By Jackie Nooker and Brett K. Sandercock

Prairie-chickens are one of the relatively few species of birds with a lek-mating system. Males display and defend small territories in a small area, called a lek. Think of a bar as the human equivalent, except without the beer and peanuts.

The mating display of male prairie-chickens is legendary. From a blind located near a lek, visitors can observe males stomping their feet and emitting a low-frequency 'boom' vocalization. Fighting is frequently observed, with fights often escalating to physical combat and loss of feathers. Females visit the lek, copulate with one of the males and then makes a nest and raises the young on her own. I will let you draw your own comparison to a bar here...

A characteristic of lek mating systems is a high skew in male mating success. We found that only 18.5% of males (20 of 108 males) obtained 87.2% of all copulations (74 of 85 copulations).

The goal of our research is to determine what makes so few males so sexy that they can attract most of the females. In 2003 and 2004, we compared the number of copulations received by a male throughout the entire season (reproductive success) with the behavioral, physical and territorial attributes of that male. Successful males had more vigorous display and aggressive behaviors when females were present. When females were not present, seasonal reproductive success related to increased aggressive behaviors but lower display behaviors. This result suggests that males may be setting up a pecking order when females are not present, but females can detect this pecking order and copulate with the most dominant male. Heavier males were more likely to mate than lighter birds, but age, physical size or size of the fleshy area above the eye (comb) was not important.

Territory size or location also did not predict which males mated. This is surprising because previous studies reported that males in the center of the lek gain more matings than males on the edge.

In 2005 and 2006, we tried to determine whether testosterone was causing males to be more aggressive and thereby obtain more copulations. To test this hypothesis, we gave 15 males testosterone implants under their skin which slowly released testosterone over the next 6 weeks. We gave an additional 13 males empty sham implants (controls) to make sure handling the males did not cause any behavioral changes. We chose males that we had not seen copulate previously

to receive the implants. We found that testosterone-implanted males were more aggressive than control birds, but display behavior and territory location did not differ between testosterone-implanted males and control males. Testosterone-implanted males were 4.3 times more likely to gain a copulation than control males, but this difference was not statistically significant. This was one of the first times a testosterone implant experiment was conducted on a lek-mating bird. In conclusion, females use male behavior to select a mate, and that this behavior is partially controlled by testosterone.



Chicken Fight



Big Decision

Jackie Nooker - Ph. D. Candidate, Division of Biology, KSU  
Dr. Brett Sandercock - Associate Professor, Division of Biology, KSU

## In Memoriam - Dr. Ernst K. Horber, an Original Docent

*By Dr. Valerie Wright*

Ernst Horber was such an interesting man. Born in Switzerland, he studied entomology and became a research scientist. After working for industry, he moved his family to the U.S. because of disagreement with the widespread use of broad-spectrum pesticides after the war. He received his Ph.D. under a world-renowned expert in host-plant resistance, Dr. Reginald Painter, who was a faculty member in the Entomology Department at Kansas State University and eventually took Painter's place on the faculty. Ernst was a true intellectual, interested in the arts and every subject "worthy of discussion", wide read and up-to-date in all aspects of the sciences until his death. Ernst passed away on January 14, 2007, just two days before his 88th birthday.

I met Ernst Horber at the door of Waters Hall the day I arrived to take my new position in the Entomology Department in 1979. Although I would not be working with him, he was concerned that I had found a place to live and that I knew how to find my way around the Department and Manhattan. We shared many functions and meals together thereafter and became good friends. Ernst took me to Konza Prairie for the first time. We hiked through many watersheds where he had research plots on musk thistle biological control. I was his volunteer recorder while he counted musk thistle weevils and winter rosettes. The result is that musk thistle is a rare find on Konza these days, so well did the weevils work. He loved Konza Prairie and enjoyed his work. When I returned from four years in Honduras in 1993, Ernst had retired. He was the first person to tell me about the new docent program and encouraged me to join. He had just finished docent training himself with John Zimmerman and slyly commented on the fact that he "had to be trained."

Ernst Horber was a born teacher, whose many students, including myself, learned a great deal from him. That is what a docent does.

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## New Program Honors Twenty-Four Quality Docents

Last January we initiated the Quality Docent Program to help both active and inactive docents keep up to date on Konza information. To qualify for the new KEEP patch, a docent returned for two regular training sessions and two in-service activities of their choice. In 2006 24 docents fulfilled these requirements. If your name is not on this list, we hope that in 2007 you will qualify for the KEEP patch!

Earl Allen	Ted Hopkins
Joc Baker	Sue Hunt
Myron Calhoun	Larry Loomis
Nancy Calhoun	Miles McKee
Jean Craig	Jackie Mershon
Gordon Cunningham	Jim Morrill
Bob Davis	Ann Murphy
Charlie Given	Martin Pankratz
Pat Gormely	Jeff Shoop
Nancy Goulden	Wilton Thomas
Jon Harkness	Charlie Whiteman
Chod Hedinger	Mary Windholz





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## Prairie Chicken Viewing Opportunity

### **In-service training: Docent Greater Prairie Chicken Observations**

This year, docents are invited to reserve a seat in the blind any date places are available, March 24 through April 15, 2007. If you bring a friend, their fee is \$15/person. Meet your docent guide at the Scenic Overlook on Highway 177 before daylight and car pool to the blind. Experience the booming of the prairie chickens as they celebrate the spring mating season. We are limited to 7 persons in the observation blind each morning, so get your reservations in early!



**Booming Male**

**Contact Annie Baker to reserve your space, 785-587-0381 or [bunny@ksu.edu](mailto:bunny@ksu.edu).**

Share this unique opportunity with friends and neighbors! KPBS is taking public reservations for its prairie chicken blind from March 24 to April 15. Viewing the courtship behavior of the Greater Prairie Chickens will be allowed with a guide assigned by KPBS with a charge of \$15/person. Details of where to meet and times, as well as regulations, will be given when the reservation is scheduled. In general, we enter the blind before daylight and remain in the blind until approximately 8:30 a.m. or until the birds have flushed.