KONZA PRAIRIE BIOLOGICAL STATION

Tallgrass Gazette

Autumn 2000

"The Newsletter for Docents and by Docents"

Tall Tales of Tall Fall Plants

The tallgrass prairie lives up to it's name during the late summer flourish. The towering flowering stems include the antenna plant, native sunflower, Indian grass, and big bluestem.

You may have recently seen some abnormally tall forbs sneaking up on people and getting in their photographs. Notice this one pushing Valerie out of the shot. *Stenosiphon linifolius*, aliases flax-leaved stenosiphon, tall gaura, and false gaura, is simply known amongst the Konza staff as "the antenna plant". The antenna plant grows throughout the central state from South Dakota to Texas. It loves the habitat that Konza provides: dry, rocky areas with plenty of limestone in the soil.

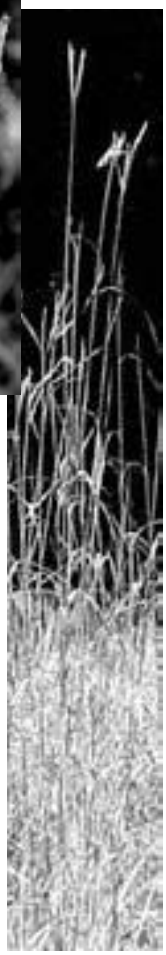
Indian grass - photo by Valerie Wright

Antenna plant - courtesy Valerie Wright

From a distance, the flowering antenna plant looks like a number of marshmallows set on toasting branches. Up close, the marshmallows become clusters of tiny, sweetly perfumed, white flowers. The fragrance is said to be wonderful in the evening.

The truly ambitious native sunflower, *Helianthus annus*, tracks the sun's movement across the sky in a process called heliotropism. The stems push the golden flowers up to ten feet high in a seeming attempt to touch the sun.

Big bluestem - stock photo



Our cheerful state flower thrives in harsh, dry, and open areas such as disturbed land and along roadsides. The large cultivated sunflowers today are derived from hundreds of years native sunflower cultivation.

Indian grass, *Sorghastrum nutans*, waves its feathery clusters up to seven feet in the air. Each yellow spikelet is fringed with white hairs making stands of the plant shimmer in the breeze with a silvery gold luster. Indian grass provides excellent forage for mammals and seeds for numerous songbirds. Animals and birds often take cover or nest in dense stands of Indian grass.

Towards autumn, Big Bluestem, *Andropogon gerardii*, shows it's true colors. While most grasses turn ordinary brown as they go to seed, bluestem bravely defies convention and mixes pink, blue, and mauve on the same culm. In further defiance, it waves unlikely flowers shaped like turkey feet up to seven feet in the sky. Big bluestem and little bluestem contribute a distinct lavender tinge to the autumn prairie.

In the spring, all these skinny giants will disintegrate and ground-hugging foliage will enjoy an unencumbered view of he sky for a few months.

Native sunflower - stock photo

Susan Bale

Prairie Patter

Dr. Valerie Wright, Education Coordinator

Although summer seems to be a quiet time on Konza, there is a lot going on. **Joe Gelroth** worked for a month fixing up the Nature Trail. He added more gravel to the top of Lookout Hill and got those erosion areas under control. He also moved some large Cottonwood limestone rocks into place as seating areas. **Franz and Phoebe Samelson** spearheaded the placement of these seats in areas where we can rest our weary bones during a hike or stop to do some quiet bird and nature watching.

A new resident of Konza Prairie is **Claire Rachel Larkins**, born to **Jim and Shelly Larkins** on July 12, 2000. Jim is Tom VanSlyke's right hand man. The family lives in the house east of the Fire Station.

The Hokanson Homestead barn has a new roof , a concrete floor and walls without cracks. **Virgil Warren** and his crew finished the roof on August 16th. **Wade Walker**, his family and some of his Scout Troop #74 assisted by staining about 400 board feet of lumber. Soon the KSU student chapter of the Association of General Contractors will finish the walls and roof of the lean-to and hang new windows and doors.

Cindy Quinlan spent some hot hours keeping the flower beds weeded and watered. She also transplanted some more medicinal and food plants, including beebalm and Jerusalem artichoke. Many thanks, Cindy! And thanks to **Chad Hedinger** for his treks up to the Kings Creek Trail mailbox to keep it supplied with trail guides.

While gearing up for the school year and our busy season in September and October, we have been working hard to make available to teachers and their classrooms a place on the KEEP web site where students can enter the data they have taken while on a Konza field trip. **Kathleen Jones**, seventh grade life science teacher at Eisenhower Middle School, has been working as a summer intern on this web project. As consultants, two Division of Biology staff have been helping out. **Brent Brock** is the data manager for KPBS and **Bob LeHew** is a technology expert. **Maria Esperanza Andrade**, my niece who is studying computer science at the University of Cuenca, Ecuador, started the process back in April by setting up the original design.

Part of the original KEEP site, it can be accessed via the "Konza Science Adventures" link. There are six "Trails" to follow, depending on which science activity a class participated in. The general information about the activity is open to public viewing. For example, the "Grasshopper Trail" has a key for identifying groups of grasshoppers, a description of how to pin specimens and other information about grasshoppers. The data taken during the field trip can be entered from the classroom in a special password protected section. Teachers can access the multiyear data base and use the information in the classroom for analysis or graphing. Data can be accessed by other teachers upon request. There are many applications for various subject areas, including math, science and technology. Find the new information in mid-September at www.ksu.edu/konza/keep.

A Week on the Prairie - by Lisa Stramel

I spent a week at Konza Prairie as an intern to Dr. Valerie Wright. I'll begin teaching third grade this year at Marlatt Elementary and the prairie is one of our areas of study. The week began with an interview with Dr. Wright to find out about her job as Environmental Educator. One of her current projects is the renovation of the old barn at the Hokanson Homestead. The barn will provide a protected area for groups hiking the Nature Trail as well as a staging area for student activities. It includes a wildlife observation area in an attached lean-to. She and Kathleen Jones, seventh grade life science teacher at Eisenhower Middle School, are developing a web site for students who work on science projects at Konza, a part of the long-term ecological research program.

Konza site manager, Tom VanSlyke, gave me a grand tour of the headquarters. I learned a lot about the history of the Dewey Ranch, the experiments taking place at Konza and the facilities. I spent part of my time reading about the history of Konza Prairie, the trails and the research being done by both professional scientists and students.

I was fortunate to be able to go on one of the bison tours and see the large herd. Probably the most helpful was the Nature Trail hike. Dr. Wright and Jan Evans took some docents-in-training and I along the trail, pointing out research areas, many wildflowers and some "critters". As always, hands-on is the best way to learn! (Unfortunately, I learned about seed ticks first-hand too.) It was helpful to read more about the plants and animals when we got back. The information meant more now that I had "seen" the prairie.

Dr. Wright and I discussed materials that would be most appropriate for third graders, both before and during our class visit to Konza. Jan and I organized some of the materials used for visiting school groups, in preparation for the "busy season". To round off my hands-on experience, the week ended with a hike on the Butterfly Hill Trail with a group of second graders and two docents. I think I'll remember the bug spray next time! Thank you, Dr. Wright!

KPBS puts out APB on Exotic Species

The clumps of Sericea lespedeza look innocent enough. But for the Konza and surrounding Flint Hills, this plant and other exotic species pose a threat to native grasses. They have a potential to completely displace native grasses.

About a dozen docents have been recruited to help KPBS staff flag patches of the "invaders" along the Shane's Creek and Nature Trail areas.

Sericea lespedeza, Caucasian bluestem (*Andropogon bladhii*) and Musk thistle (*Carduus nutans*)are the prime suspects on the hit list of a new intensive monitoring and management plan. The plan will encompass each of KPBS' 60 management units, said Dr. Dave Hartnett, director. The plan is part of the revision of Konza's long term management plan last updated in 1988.

"We're planning to implement a very regimented survey to canvass the entire Konza," Hartnett said. "We want to locate plants as they come in. We don't want a patch of Sericea to colonize a remote area and not find it until several years later when it's well established."

An annual survey will be conducted to locate any new invasion and map and monitor all exotic species. Data on locations and numbers of each species of exotic plants will be entered into GIS. A KPBS map designating locations of all patches of exotic plants and their status is posted at KPBS headquarters.

You flag 'em, we dig 'em!

- photo by Valerie Wright

Mounted specimens are kept at the herbarium in the Hulbert Center, and in the KPBS Ecology Laboratory. An information exhibit on exotic species will be on hand at the upcoming Visitor's Day.

The docents participating in the survey were provided with an identification training and have begun to assess assigned sections of Konza. Konza researchers and staff have begun surveys in cattle units and are working on ungrazed units along south Konza.

"We won't get all 8,600 acres done this year," Hartnett said. "But if we do each section on a regular basis, perhaps every other year, we'll be able to keep an eye on it."

So how much of a problem do exotic species currently present on Konza?

Musk thistle has been present for quite some time. Sericea lespedeza and Caucasian bluestem are more recent and have shown evidence of spreading. Known populations are monitored and controlled.

"If we can physically remove a plant without chemicals, that is our preferred method," Hartnett said. "When we do use herbicide, we never do any aerial spraying, it's all individual plant application."

Sericea lespedeza, a legume, was originally introduced to the United States as a forage crop. During the 1930s, this legume was also planted in Kansas for erosion control and wildlife habitat. The Kansas legislature declared it a county option noxious weed 12 years ago. First discovered on KPBS in 1996, isolated stands of Sericea lespedeza continue to appear. Its seeds are widely dispersed by birds and other animals.

Caucasian bluestem, like sericea, was introduced as a potential livestock forage crop. Before KPBS was established, this species was planted around Ashland Bottoms, north of Konza and has since spread south. Management of this species is focused on stabilizing and gradually reducing populations near headquarters and preventing its spread into N2A and N4A.

A K-State undergraduate student, Arden Thomas, participating in REU, has conducted population ecology research on small plots of the Caucasian bluestem with burning treatments and herbicide treatments.

The bluestem is a bunch grass. Thomas has discovered the size of the clumps determines plant growth and seed production. It also determines how well herbicide application works. Smaller bunches are more susceptible to herbicides. In addition, burning tends to shift the structure of the Caucasian bluestem to smaller clumps, suggesting that a combination of frequent burning and herbicide application may be an effective control method.

Musk thistle has scattered populations in several areas of the Konza. When rosettes are discovered, they are dug up, deep enough to remove most of the taproot. Dense stands are controlled by direct herbicide application. All flowers of any bolted plants are to be removed prior to seed maturation, bagged, and destroyed.

As KPBS staff, researchers and docents continue to monitor and manage the exotic species, Hartnett said they hope to not only understand the causes and effects of invasion, but to better understand implications of exotics on Konza prairie ecosystem and wildlife and to find a way to manage the prairie that discourages exotics. Preliminary results from the long term fire ecology research have found a strong correlation between increased burning and greater resistance to invasion, he said.

Tawnya Ernst

Chief Editors: Susan Bale and Tawnya Ernst

We encourage our readers to contribute articles, photos, snippets or ideas for future issues.You may contact us at: sbale@oznet.ksu.edu or ternst@oznet.ksu.edu

and the fun continues on …

FOKP Annual Meeting Docent Graduation and Bison Barbeque

Friday, September 29, 2000
6:30 to 8:30 p.m.

- ❏ Bison Mini-Tours
- ❏ Hay Rack Rides
- ❏ Cool Stuff for Sale

RSVP by September 20th,
Call the Konza Prairie Office at:
587-0441 or contact
Jim Craig at: 539-3907
or Email: jcraig@flinthills.com

Saturday, September 30, 2000
8:00 a.m. to 5:00 p.m. with the …

Konza Prairie Biological Station Biennial Visitors' Day!

All Docents are Needed for:

- ❏ Guided Hikes
- ❏ Hay wagon Rides
- ❏ Displays & Tours
- ❏ Bison Tours
- ❏ Video Slide Show
- ❏ Cool Stuff for Sale

NEW Live Animal Exhibits! Come see local species of snakes, lizards, frogs, and salamanders!

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310