



# Society for Ecological Restoration Texas Chapter

Restoration Field Notes  
June, 2013



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## TXSER News Flash

### John Zak Confirmed as Keynote Speaker

**TXSER & TRA - Joint Conference  
The New Ecology: Managing for Resilience in a Changing World**

**November 1-2, 2013**

John Zak, Associate Dean and Professor of Soil Biology at Texas Tech University will be the Keynote Speaker at our opening dinner on Friday evening. Zak's core research focuses on the diversity and structure of soil bacterial and fungal communities and their role in regulating the functioning of natural and managed arid ecosystems. In each project, Zak's lab is focused on understanding how soil microbial dynamics and processes can be self-sustaining, such that these systems are sustainable for future generations.

Recently, Zak undertook the role of TTU's Principal Investigator for the South-Central Climate Change Science Center which seeks to better understand the impact of global climate change on human and natural ecosystems across the South Central United States. Zak's research provides critical information that can be used by all of us to address water policy issues, to develop conservation, management, and restoration strategies, and to help formulate economic responses

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**Save the Date!**

**TXSER & TRA**  
Joint Conference

**The New Ecology:**

that are linked to projections of precipitation patterns and temperature.

In his keynote address, Zak will highlight his work on arid ecosystems and climate change. He will challenge conference participants to think about the impact of temperature and precipitation on terrestrial and aquatic ecosystems as we seek to manage and restore critical and/or degraded habitats in the State of Texas. We are thrilled that John will be kicking off the conference.

### **Re-Vegetating with Mediterranean Annual Grasses - I Hope I am Wrong About This**

**Kelly Lyons**  
**Associate Professor, Department of Biology**  
**Trinity University, San Antonio, TX**

I was born and raised in Texas but trained as an ecologist and botanist in California. I recall returning home for holiday with just enough botanical knowledge to be dangerous, not to mention a nuisance to my family, and stepping on a "sticker" and wondering "what in the heck is that, really?" I was empowered by the discovery that the stickers on stickers are modifications of floral bracts.

Fast forward beyond graduate school and a post-doc, more years than I would like to admit, when

I take my first real job in Texas and discover that someone had messed with Texas. My first impressions were what you might expect from a botanist returning home to the heart of the Lone Star State.

Biodiversity had been reduced. Perennial grasslands and our roadsides had been homogenized by purposely introduced, non-indigenous, invasive species. Even stickers were not as common as they used to be!

And it seemed like very few people noticed the changes. It is hard to complain as there is great job security for an invasive species specialist like me in this contemporary, novel world. But, when I realize what we have lost without documentation I better understand Aldo Leopold's question "Is education possibly a process of trading awareness for things of lesser worth?"

Nonetheless, having done my PhD work in California where vast perennial grasslands were replaced by non-



Spikelets of *Lolium*, sp.  
Credit: [missouriplants.com](http://missouriplants.com)  
Photo taken 5/26/03

## Managing for Resilience in a Changing World

November 1-2, 2013  
Junction, TX

Join us along the banks of the South Llano River on the campus of Texas Tech University for the TXSER and Texas Riparian Association Joint Annual Conference.

For updates on registration, field trips, and program information visit:

[www.txser.org](http://www.txser.org)

indigenous, annual grasses from the Mediterranean, I was comforted by the fact that our grasslands were still dominated by perennial, C4 grasses, even if much of the biomass came from the invasive sorts. This C4 grass exchange for other C4 grasses acted as a sort of "creeping normalcy" for me when I began to see Mediterranean, annual grasses as part of long-established roadside plant communities and lawns in San Antonio.

As many of you know, Mediterranean annual grasses are often recommended for re-vegetation as quick and reliable soil stabilizers. The common belief is that these species disappear once more desirable species establish. Indeed, the Texas Department of Transportation uses them in their mixtures. I suspect, however, that our milder climate as of late has allowed these grasses to complete their cycle of reproduction and persist in the soil seed bank over the winter. They then germinate and sprout with our C3 (cool-season) grasses, such as Texas wintergrass, and persist among highly competitive, invasive species, such as Bermuda grass and Old World bluestems.



Bluebonnets in the shadow of Bastard Cabbage (*Repistrum regosum*)  
Credit: Ralph Barrera  
Statesman.com, 4/23/10

Further fueling this concern is the introduction and spread of bastard cabbage and Malta and yellow star thistle, other Mediterranean annuals recently introduced to central Texas.

Furthermore, these invasion trends are documented in Australia and South America as well. A tough winter might be enough to remove these species from our soil seed banks (assuming this is the mechanism that determines persistence) but I am not sure what a tough winter looks like anymore.

I therefore invoke another Leopoldian concept - the precautionary principle. Are the benefits of short-term soil stabilization worth the risk of converting Texas perennial grasslands to annual grasslands?

## Black-Tailed Prairie Dog: A Keystone Species in Prairie Restoration

**Leslie Dietz**

**Masters Candidate, Population and Conservation Biology  
Department of Biology, Texas State University, San Marcos, TX**

Keystone species are defined as one whose presence or absence dramatically alters the structure and dynamics of ecological systems.[i] Prairie dogs have been identified as a keystone species due to their affect on other pioneer prairie species. From the smallest trophic level to the large ungulates of the historic prairie, the prairie dog plays a pivotal role in this diminishing ecosystem.[ii]

Short grass and mid grass prairies are critical habitat to a variety of endangered and threatened species. One of these species is the black tailed prairie dog (*Cynomys ludovicianus*). By foraging and habitat preference, their native range in Texas is any prairie area west of the hundredth meridian. In other words, nearly everywhere in Texas west of towns like Childress, Abilene, Junction and Uvalde.

The prairie ecosystem is dependent on the prairie dog to be sustainable. Prairie dogs break up the soil when digging their tunnels. Not only does this allow the subsoil to be brought to the surface, increasing nutrient cycling and nitrogen content, but it also allows the soil to be aerated. Additionally, this allows an influx of water to get below ground level during rain events. This increased porosity leads to higher water penetration and groundwater recharge.[iii] As a result of the soil disturbance, a greater diversity of forbs is found near prairie dog towns.



Black Tailed Prairie Dog Family (*Cynomys ludovicianus*) on Maddin Prairie.  
Credit: Jesse Wood

Several species have symbiotic relationships with prairie dogs and require them for their survival. For example, Killdeer will only nest on the bare ground created by the heavy herbivory of prairie dogs close to their burrows. Prairie chickens use these bare areas for their ritual mating dances and burrowing owls utilize the same tunnels for living and evading predators. Prairie dog colonies support a diverse array of wildlife, including black-footed ferrets, North America's most endangered mammal.



Prairie dog on its way to a new home.  
Credit: Jesse Wood

Even though healthy prairie dog towns support great diversity and are critically important to ecosystem health, government policies and private efforts have wiped out the prairie dog population in the last 100 years. Since the late 1800's, prairie dogs have been considered a nuisance by ranchers because of their alleged competition for forage with cattle.[iv] As a result, these animals have been poisoned, trapped, hunted and shot on site. However, recent research analyzing 40+ years indicates that prairie dog competition with cattle is less than 10%. Despite this new evidence, prairie dogs continue to be killed at an alarming rate and current estimates indicate that less than 1/3 of 1% of the native prairie dog population remain.

Efforts are currently underway to restore this valuable prairie species. A soil scientist by training, restorationist Jesse Wood has over 15 years experience working with prairie dogs in prairie habitats. In the High Plains and in west Texas, Wood works with landowners to reestablish this threatened species. One example of a successful restoration effort is Maddin Prairie, located just outside Colorado City, TX. Maddin Prairie, owned

by the Native Prairie Association of Texas (NPAT), recognized the necessity of prairie dogs for a healthy prairie habitat.

In 2006, Wood established an initial prairie dog family of 89 members on 10 acres of the Maddin Prairie. Today it is 100+ strong. The initial introduction involved building underground lairs and connecting them to the surface with black plastic piping. Pipe tops were covered with a metal mesh that was wide enough for the prairie dogs to get through, but small enough to discourage coyotes and badgers. As the town expanded, the prairie dogs have left the artificial environs to build their own burrows. As a result, NPAT has increased the prairie dog habitat to approximately 25 acres. According to Wood, prairie dog restoration can be implemented on as little as one acre. All that is needed is a landowner that recognizes the value of this diminishing prairie species.



Black-Tailed Prairie Dog on the lookout in its new home. Cage is temporary. Credit: Jesse Wood

For more information about NPAT's Maddin Prairie, prairie dog restoration effort, contact Jesse Wood at: [ojwood@msn.com](mailto:ojwood@msn.com)

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[I] Paine, R.T. 1969. A Note on Trophic Complexity and Community Stability. *American Naturalist* 103:91-93.

[ii] Davidson, Ana. 1996. The Prairie Dog as a Keystone Species.

<http://sev.Iternet.edu/~bmilne/bio310/96/termpaps/david.html>. Accessed May 19, 2013.

[iii] Stobodchikoff, Con, Perlbianca, S., Verdolin, Jennifer L. 2009. *Prairie Dogs: Communication and Community in an Animal Society*. Harvard University Press. 280 pages.

[iv] Merriam, C. H. 1902. The Prairie Dog of the Great Plains. Pg. 237-270 in: *Yearbook of the United States Department of Agriculture*, Washington, D.C., U.S. Government Print Office.

## TXSER Student Association News

The Texas A&M Society for Ecological Restoration Student Association rounded out the spring semester with a guest presentation on "Conversion of KR Bluestem Grassland to Native Grasses Via Soil Restoration" by Dr. David L. Davidson, retired materials scientist and Kendall County landowner. Davidson discussed methods to restore native grasses to areas dominated by KR Bluestem (*Bothriochloa ischaemum*) in order to increase biodiversity.

A protocol, termed "Accelerated Succession," was developed that appears to be replacing KR with native grasses. Measurement of soil biotics (the number of bacteria, fungi, and genera of nematodes) indicates that soil conditions present in areas where KR Bluestem was killed and restored by the accelerated succession protocol, are rapidly transformed much closer to those conditions characteristic of a mature prairie. To date, this has prevented reinvasion of KR Bluestem. Despite the drought of 2011, results of this protocol have been encouraging.

## Volunteer Field Days & Announcements

**The Hidden Beauty of Grasses - Photographic Exhibit, Fort Worth, TX  
June 8 - August 31, 2013**

A photographic exhibition of grasses with photos by Katie Northrup.  
Botanical Research Institute of Texas, 1700 University Drive, Fort Worth  
For more information visit: [www.brit.org](http://www.brit.org)



**Invasive Species Class, Acton, TX  
June 22, 2013, 9am - 4pm**

The class is offered by the Rio Brazos Chapter of the Texas Master Naturalists.  
The class will meet at the Hood County Development District #1 Community Room, Acton.  
Coffee and snacks provided. Bring a bag lunch.  
For more information contact: Robert Theimer at [rlnatheimer@sbcglobal.net](mailto:rlnatheimer@sbcglobal.net)



**Prairie Restoration Roundup, Texas City Prairie Reserve, Texas City, TX  
July 26, 2013, 9am - 3pm**

Join restorationists of SE Texas for a day of hands-on demonstrations and insightful discussions about restoring prairies to farms, ranches, private residences, parks and more. Registration required.

\$35 for general public and professionals/\$25 for students and Master Naturalists.  
For more information e-mail: [prairiepartner@gmail.com](mailto:prairiepartner@gmail.com).

The Texas Society for Ecological Restoration promotes ecological restoration as a means of sustaining the diversity of life on Earth and re-establishing an ecologically healthy relationship between nature and culture.

**Become a member today!**

**[Click Here to Join Us!](#)**

Join the Texas Chapter of the Society for Ecological Restoration. Chapter members receive valuable benefits including:

- the opportunity to network with restoration practitioners and enthusiasts;
- discounts to our Annual Conference, an opportunity to share and learn;
- invitations to attend volunteer workdays around the state; and
- monthly updates and quarterly newsletters with articles and notices about regional events that allow you to connect to the local restoration community.

Chapter membership fees of \$15 support Chapter administration. The TXSER Board consists of volunteers who share a passion for furthering ecological restoration in Texas.

SER member benefits include:

- RESTORE biweekly e-bulletin;
- SERNews quarterly newsletter;
- discounts on journal publications;
- discounts to SER World Conferences;
- discounts on SER Career Center;

- access to a searchable, online member directory; and
- promotional opportunities through the SER Calendar of Events, Restoration Project Showcase, and Restoration Marketplace.

To become a member visit: [www.ser.org/membership](http://www.ser.org/membership)

Be sure to click the Texas Chapter as your Chapter Affiliate. We look forward to having you join us.

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Correction: In our May, 2013 Restoration Update the photo of the Monarch butterfly on *Vitex agnus-castus* was mislabeled. It is a Queen butterfly. The moral of the story...not everything orange is a monarch! Apologies for any confusion.

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