Society for Ecological Restoration
Texas Chapter

Restoration Field Notes *June, 2015*

In This Issue

Quick Links

TXSER Board of Directors

President
Charlotte Reemts

Vice President
Kelly Lyons

Secretary
Leslie Dietz

Treasurer
Colin Shackelford

North Texas Rep.
Michelle Villafranca

TXSER Newsflash

Teaming With Wildlife: True To Texas is hosting the 2015 Eco-Summit Series. These are 5 full day forums taking place around the state to discuss conservation priorities for your area and facilitate local and regional collaboration. Eco-Summits are free of charge and open to anyone interested in, and concerned with, conservation issues in Texas. The Eco-Summits will be be held in:

Weslaco - July 10th
Fort Davis - July 18th
San Antonio - July 24th
Fort Worth - July 31st
Houston - August 11th

TXSER members will be joining several of these sessions. We encourage all to participate in the dialogue. For more information click here: Eco-Summit Info.

Conference Update

November 13-15, 2015 - Trinity University, San Antonio

Call for Abstracts - Click here for information on presenting papers and/or posters.

Call for Sponsorship - Click here to support the 2015 TXSER Conference.

Call for Photos - To celebrate our 20th anniversary we are collecting photos from previous TXSER events. If you have photos you would like to share, please send them to Kate Crosthwaite at: katherine.crosthwaite@hdrinc.com

TXSER Conference Details

East Texas Rep.
William Forbes

South Texas Rep.
Eric Grahmann

West Texas Rep.
Katherine Crosthwaite

Central Texas Rep.
Ingrid Karklins

Coastal Texas Rep.
Mary Edwards

Coastal Texas Rep.
Bradley Hoge

Chapter Coordinator
Gwen Thomas

TXSER
info@txser.org
(469) 321-4883

Employment Opportunities & More

For up-to-date announcements of positions open in ecological restoration and environmental science, visit our website at:
Job Postings

We also post a wide range of articles on ecological restoration issues as well as job and volunteer opportunities on our Facebook page at:
TXSER Facebook Page

Join Us...

Celebrate TXSER's 20th Anniversary

at our

2015 Annual Conference

Scheduled for: November 13-15, 2015

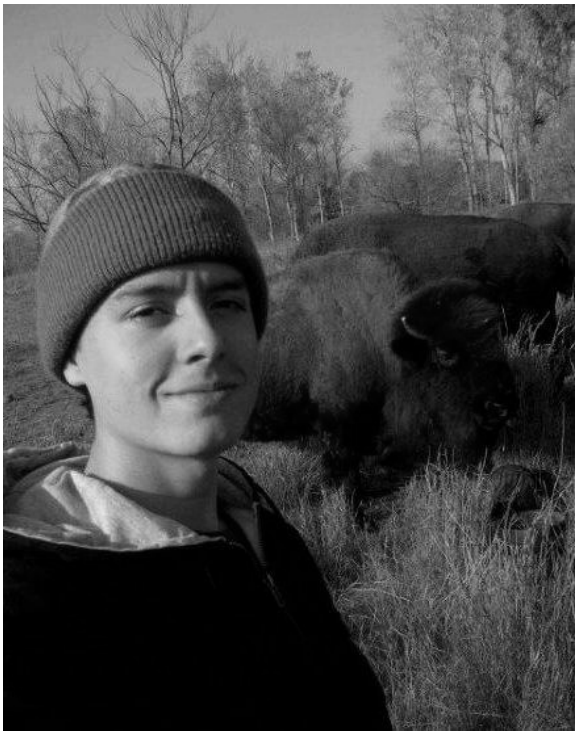
On the campus of: Trinity University in

Member Spotlight

Name: Justin Fischer

City: Fort Worth, TX

Affiliation: Appalachian State University, University of North Texas



Justin Fischer in his natural environs at the Fort Worth Nature Center and Refuge.

Briefly describe your ongoing efforts/interest in ecological restoration.
A native of the Texas Cross Timbers, I now find myself studying a thousand miles to the east. I am currently working towards a Masters in Biology from Appalachian State University in Boone, North Carolina. My thesis research is investigating the impacts that light pollution may have on stream invertebrates. With the popularity of energy-saving light technologies, it is important that we consider the sensitivities of nocturnal creatures to an array of spectral emissions. Raised in Fort Worth, I have strong roots in urban ecology. My experiences as an intern at the Fort Worth Nature Center and Refuge have fueled my ambitions for the future of Texas conservation. As an undergraduate student of ecology at the University of North Texas, I coordinated the planting of the "Parking Lot Prairie", a campus landscape dedicated to the restoration of local biodiversity. By bringing native flora into our urban areas, we can save water, capture greenhouse gases and reduce the need for mowing, all while restoring habitat connectivity. Upon my return to Texas, I hope to contribute to ecological efforts around the state, especially riparian, savanna and grassland restoration.

Describe your favorite outdoor activity.
Bird-watching has been a hobby of mine for as long as I can remember. It is exciting to watch birds move into recently restored habitats. The future will be exciting for Texas birders, with many range shifts and expansions expected due to climate and habitat changes. We may be seeing more tropical birds in our backyards soon!

San Antonio, Texas

TXSER Conference Info.

Join our Mailing List

Like us on Facebook

Little Bluestem (*Schizachyrium scoparium*)
Photocredit: Carolyn Fannon, Ladybird Johnson Wildflower Center Slide Library

What is your favorite Texas plant and/or animal?
Plant: Little Bluestem (*Schizachyrium scoparium*). I appreciate this bunchgrass because it is a quick indicator of prairie remnants and restorations in the eastern two-thirds of the state. Driving around North Texas, seeing these golden bunches of grass gave me hope for the future of the prairie. It also has excellent landscaping potential!

Animal: The recovery of the American Bison is an inspiration for all conservation efforts. Their preference for grazing on grasses promotes forb diversity, often helping to accomplish restoration goals. I hope to see these ecosystem engineers brought back to more Texas lands.

Why Study Diatoms, You Ask?

By: Brad Hoge, Associate Professor of Natural Science & Science Education, Department of Natural Sciences, University of Houston - Downtown, Houston, Texas

Mitigation wetlands are constructed to replace the functions of natural wetlands destroyed by urban development. Wetland functions such as water retention and habitat stability can be measured once wetland construction is completed, which is why federal guidelines require annual monitoring for only 5 years. In these capacities mitigation wetlands are generally successful. Natural wetlands also segregate and break down pollutants and organic matter, however. While pollutant levels and other water quality parameters are often monitored in mitigation wetlands, the amount of organic matter sequestration and degradation is not usually quantified. Organic matter sequestration and degradation is particularly important in coastal regions,

however, to reduce the biological oxygen demand on surrounding estuaries. This function relies on communities of anaerobic bacteria which produce highly reducing soils in natural wetlands. Organic matter broken down by microbial metabolic pathways leads to changes in soil biogeochemistry over time. This biogeochemistry can be studied directly, but the methods tend to be complex and expensive.

When I was approached by the Harris County Flood Control District (HCFCD) to see if I would be interested in conducting research studies in the Greens Bayou Wetlands Mitigation Bank (GBWMB), it occurred to me that I could apply a method that I developed while doing research for my dissertation in the Anahuac National Wildlife Refuge and surrounding watersheds within the Trinity River incised valley to the study of mitigation wetland soil profile development. The HCFCD constructed the GBWMB in northeast Harris County, Texas, near the city of Houston. The GBWMB is a 1,400-acre wetland project located approximately five miles southeast of Bush Intercontinental Airport, adjacent to Beltway 8 at the confluence of Garners and Greens Bayous. Water entering the GBWMB comes primarily from overflow of these bayous and storm water run-off from both urban and forested areas within the larger Trinity River valley.

Hoge at Shoveler Pond in Anahuac NWR showing students a handful of sediment. This is the control site for the diatom climax community in the Trinity River Valley. Established in 1963, ANWR is the best example of nearly pristine fresh water marsh in the area. The diatom community in Shoveler Pond is still identical to the diversity observed in 1994, and in other natural wetlands in the area. Photo Credit: Kelly Colby.

Diatoms are useful bio-indicators for many environmental impacts, including biogeochemical changes, so I reasoned they could be used to study mitigation wetland soil profile development by tracking diatom community succession trajectory. While plant diversity was established during construction, diatom community succession should follow a natural succession as conditions of the soils change to reach stable conditions. Using paleoecologic methods that compare diversity trends in diatom death assemblages at the GBWMB to climax communities in the larger Trinity River valley, we have shown that GBWMB soils began functioning similarly to natural wetlands at approximately twenty years

Hoge at same site on Shoveler Pond, ANWR, at height of the drought. Though the ANWR served as the control site, the impacts

of Hurricane Ike and the drought gave Hoge the opportunity to study their impact and the recovery process of the diatom community at this site. Hurricane Ike caused significant salt-water intrusion. The drought nearly drained the marsh. In both cases it took nearly 2 years for the diatom community to recover to normal diversity. Photo credit: Kelly Colby.

after construction. The total volume of carbon sequestration and degradation remains an order of magnitude lower, however, most likely due to lower sedimentation rates at the GBWMB which limits the depth of the soil profile. This function also appeared suddenly suggesting a boundary effect most likely related to an Eh threshold.

Our current studies are beginning to look at ecological edge effects on diatom community succession at the GBWMB by comparing surrounding watershed communities from various environments of deposition such as bayous, rivers, lakes, marshes, and swamps; as well as looking for trends in each of these watersheds which have been affected by urban development. Watersheds within the Trinity River valley include both natural areas as well as other mitigation sites of various ages. By applying our paleoecologic method to surface and core samples, we hope to build a three-dimensional database and eventually model edge effects throughout the entire Trinity River valley.

Hoge with students at another site on Shoveler Pond. The team had taken a core sample from the pond to be used to study community succession over the 50 year history of the site and to look for taphonomic affects. This is one of Hoge's favorite photos as it shows how vested the students are in the project. Students usually start out a bit skeptical about what they are doing, but are always surprised by how engaed they become collecting and counting diatoms. Photo credit: Kelly Colby.

Monitoring More Using Photos – (Series)
Part II: Photo Frame Photography

By: Charlotte Reemts, Research & Monitoring Ecologist, The Nature

Conservancy, Austin, Texas

Setting up the photo frames in the Davis Mountain Preserve, Jeff Davis County. Photo credit: Charlotte Reemts

Most vegetation monitoring is focused on how many individual plants are in an area or how much space they occupy (cover). Sometimes, however, the vertical structure of the vegetation is very important. For example, the grassland birds using a particular site will change after mowing or heavy grazing that changes a tall, dense grasslands to a short one, even if all the same plant species are present. Monitoring vertical structure (also called visual obstruction) is often done using range poles, but a large number of measurements are needed and it can be difficult to do accurately.

Ryan Limb and his colleagues developed a technique using a frame covered with white plastic sheeting as a background for a photograph. The photograph is then cropped to include only the frame and turned into black and white. All the black is vegetation cover and the total percent cover is calculated as the number of black pixels divided by the number of white pixels. As with all photographic methods, the analysis can be repeated in different ways. I often split the frame into height categories and calculate cover for vegetation under 1 m and over 1 m separately.

Adjusting for sunlight and shadow at Mad Island Marsh Preserve, Matagorda County. Photo credit: Mad Island Marsh Preserve Volunteer

The height of the frame should be tall enough to encompass most of the vegetation you expect to encouter. In coastal grasslands, I use a frame 1.5 m tall (and sometimes the little bluestem is still taller than the frame!); in west Texas, I use a 1 m tall frame. I constructed my frames from PVC pipe (putting electrical tape on the upright sides every 10 cm to measure vegetation height) and sewed fabric covers. The fabric is more durable than the sheeting when working in dense vegetation, but it can be difficult to get it stretched tightly across the frame. Limb analyzed his photos in Adobe Photoshop. I use ImageJ, free software developed for medical imagery. ImageJ has a lot of flexibility in analyzing different parts of the photo separately. You can also exclude certain parts of the photo, such as a shadow from the person holding the frame.

Some tips to keep in mind with this method. First, it is much easier to do with two people (one to hold the frame and one to take the photo). If you have to do it by yourself, use some long rebar and put your PVC over the rebar (easiest to do in deep, soft soils). Second, lighting can be tricky, since sometimes you have to take the photograph into the sun. In that case, switch the positions of the frame and the photographer; you'll still "sample" the

same vegetation, but the light will work in your favor.

References:

Limb, R. F., K. R. Hickman, et al. (2007). "Digital Photography: Reduced Investigator Variation in Visual Obstruction Measurements for Southern Tallgrass Prairie." Rangeland Ecology & Management **60**(5): 548-552.

A Heartfelt Thanks to the Following Organizations for their Generous Support of our 2014 Conference!!

Please Take a Moment to Click on the Above Logos & Check Out Our Sponsors' Websites.

The Society for Ecological Restoration, Texas Chapter 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 of Directors consists of volunteers who share a passion for furthering ecological restoration in Texas.

Joining SER links you with a global restoration network. SER member benefits include:

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 and Restoration Project Showcase.

To become a member visit: **www.ser.org/membership**

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

Society for Ecological Restoration, Texas Chapter | 5606 Southampton Drive | Richardson | TX | 75082