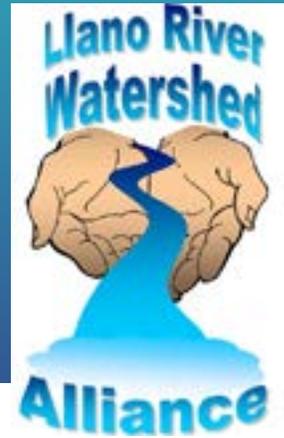


Watershed Weeks In Review -

LRWA Riparian Workshop, TCEQ News

Editor: Linda Fawcett



WHAT MAKES A HEALTHY RIPARIAN ZONE? To find out, the Llano River Watershed Alliance held a half-day riparian stewardship workshop on Saturday, September 10, 2022 with reknowned conservation expert, **STEVE NELLE**. (The first of a series of workshops made possible by a grant from the US Fish and Wildlife Service. Purpose: educate and work with landowners in the Llano River Watershed to understand, restore and maintain their part of the watershed. This work-



Front Row: Rachel Seets, Charles Evans, Steve Nelle



Scott Richardson giving a history lesson

shop focused on the plants and land management practices that produced a functioning riparian zone.

Here's a few notes from Steve Nelle's well-orchestrated slide presentation that we saw in a TTU classroom, before we went to the South Llano State Park to see in the field what we just learned.

Riparian: where the water and land meets (extends until the transition to the upland zone). It works together as a complex machine with interacting gears: water, soil, and vegetation.



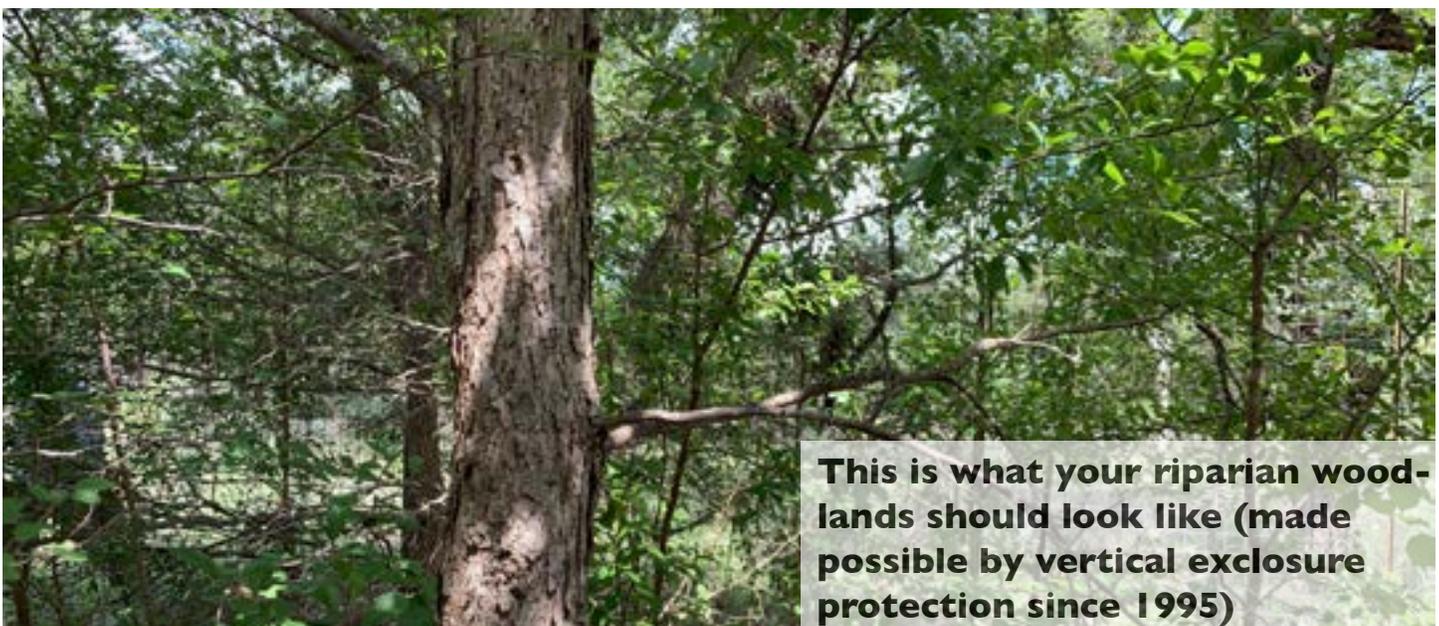
1995 Exclosure (center); note sparser vegetation left and right

FACT: rivers and streams will ALWAYS have rises and floods, so adequate, stable (long-rooted) vegetation and woody shrubs and trees are necessary to dissipate high energy during floods (you know, to prevent too much erosion). Also to slow the water down to trap sediment (that will make more vegetation) and floodwater (to feed the water table that feeds the stream).

The riparian zone needs to be about **WATER CATCHMENT**, not Water Shed. Too much water runoff will dry out faster. In contrast, Water Catchment promotes the area becoming wetter.

How Does a Creek Work?

- Streams want to meander. Let them! (slows down flood water...)
- **Base flow** is generally below the banks of the stream. **Bank Full** (routine rise) raises the water level near or to the top of the banks.
- The **water table** is just below the streambed and can extend laterally under the surrounding flood plain as well.
- The **Big Flood** covers the flood plain and recharges the water table, but can also cause damage (bank erosion, lost vegetation and trees) that can hamper recharge in the future.



This is what your riparian woodlands should look like (made possible by vertical exclosure protection since 1995)

GOOD RIPARIAN MANAGEMENT...

...works to sustain **Base Flow of streams** and enhance the natural recovery of streams after a high energy event. Here's a few management tips:

- Fallen Trees: **LEAVE IN PLACE**, even in the flood plain. They eventually become buried to strengthen understructure, later become soil.
- Don't overgraze or over-bulldoze or over-weedeat or over-mow!!!
- No vehicle traffic at all in the flood plain.
- Control foot traffic, perhaps even interrupt established animal trails.
- Avoid artificially changing the bank.
- **CUT DOWN DRASTICALLY ON WILDLIFE BROWSERS**, especially **AXIS deer**: "ruthless herd reduction." Their indiscriminate browsing prevents the growth of new trees.
- **PROMOTE NEW TREE GROWTH. LAST BUT NOT LEAST: VEGETATION** is the **KEY** to a healthy functional riparian area! More on that below...

"CUT DOWN DRASTICALLY ON WILDLIFE BROWSERS, especially AXIS deer.. Their indiscriminate browsing prevents the growth of new trees."

Note: the root systems of plants are stability rated 1-10 (bigger the number, longer the roots). **Stabilizers are usually 7-9.**

Ever been to the Caverns of Sonora? Kinda like walking inside the Edwards Aquifer...

If you've seen the Caverns of Sonora, you have an inkling of what the Edwards-Trinity Plateau Aquifer looks like below us (meaning those us living in or visiting the Llano River Watershed):

Our aquifer is **Karstic** - an irregular limestone region with sinkholes, underground streams, and caverns, created by dissolving of the bedrock over time. Karst is associated with soluble rock types, such as limestone, marble and gypsum.

So, when it rains, the water runs downhill and seeps through crevices, gravel, soil etc into all the nooks and crannies below, creating the water table that feeds rivers and streams and occasionally pushes back up as springs.



COLONIZER plants are important because they are the healing period's temporary cover - they grow fast. But they are just placeholders.

A few Hill Country examples of Colonizers: [Baccharis \(6\)](#), [Spikerush \(6\)](#), [Bushy Bluestem \(5\)](#), [Knotgrass \(6\)](#).

STABILIZER plants are deep-rooted so they can withstand strong floods. They should appear within 1-2 years under good riparian management. They hold the bank, slow down the floodwater and trap vital sediment.

A few Hill Country examples of Stabilizers: [Switchgrass \(9, one of the best stabilizers\)](#), [Eastern Gamma grass \(9, drawback: grazers love it\)](#), [Emory Sedge \(9\)](#), [Saw Grass \(9-10\)](#), [Water Willow \(7\)](#).

LASTLY, because of heavy browsing by both Axis, Whitetail deer, and goats there are no young desirable trees replacing the maturing trees, many of which are dying of old age, diseases, and drought.

A way to protect baby trees from browsers: **EXCLOSURE** (see a detail of a horizontal enclosure below).



Detail, Horizontal Enclosure: 2 stock panels, nine 3' T-posts, wire

WHAT'S HAPPENING WITH THE DAMN DAM?

The LRWA and other affected parties are continuing to reach out to TCEQ for updates pertaining to the proposed private recreational dam, Permit Application #13524, Waterstone Creek LLC, South Llano River.

LRWA member Patty Schneider Pfister reported that during a recent conversation, TCEQ explained that even though no decision has yet been made on a public meeting, they are monitoring the high volume of public comments (**645 SO FAR**) and community concern on this water rights permit application. TCEQ clarified that after conducting a thorough review of the permit application and all comments and requests, a public meeting may or may not be approved by the TCEQ Office of Executive Directors. There was no indication of how long the review may take. If a public meeting is not granted, all of the information, public comments and requests will go to the TCEQ General Counsel, Office of Public Interest Counsel (OPIC) and other offices, and a decision will be made as to whether a contested case hearing will or will not be granted.

We will keep you posted with any further updates.

Materials: stock panels, T-Posts, wire. Two kinds: 1) vertical, stock panel fencing, as tall as possible, but don't place in a flood zone, 2) horizontal, that can resist most floods if placed correctly. As trees grow through the stock panel openings, enlarge their holes as needed.

Detail: horizontal enclosure



Examples of Hill Country woody plants (trees/ shrubs):

Black Willow (7/8), Elm (American or Cedar, 6), Sycamore (6), Cypress (Bald, 9/10), Buttonbush (shrub, 8), Indigobush (Amorpha, 7), Little Walnut (Texas Walnut, 8), Native Pecan (6), Live Oak (6), Spanish Oak (Texas Red Oak, 6) and Chinkapin Oak (6).

ALERT!
The Llano River Watershed Alliance NEEDS YOU TO HELP US HELP YOU (and the river!)

(and so we can deliver our grants)

1) If you live in Kimble County and have Arundo cane on or near your riverbank, please contact us so that we may visit with you about it *(see INFOGRAPHIC Last Page).

AND/OR

2) If you live anywhere along the Llano Rivers, LRWA consultants will do a FREE assessment of your vegetation to give suggestions on how to better achieve your objectives!

HIGHLY RECOMMENDED FIELDGUIDE
for riparian plants:
Your Remarkable Riparian, available from Nueces River
Authority or locally at NCRS (\$50) OR GET ONE FREE
if you ask LWRA to do a FREE assessment of your
vegetation to give suggestions on how to
better achieve your objectives!

TCEQ Hosts a Stakeholder Meeting at their Headquarters in Austin on August 31, 2022, 1:30-4pm

Do you remember the **Pristine Streams Rulemaking Petition** (a proposed TCEQ rule to prevent *new* direct discharge permits into pristine waterways), denied by the TCEQ at its Commissioners Meeting on March 30? (See LWRA Newsletter, April 29.) A recommendation by the Commissioners that day was the need for more transparency of their permitting process. This Public Meeting was a result. Below is an abbreviated synopsis.

First, various TCEQ staff members gave presentations, such as:

1. How the TCEQ administratively organizes the Hill Country pristine streams and the distribution of wastewater permits.
2. How wastewater disposal applications are screened: numeric versus narrative with all its variables.
3. Technical explanation of current treatment technologies.
4. Contested case hearings.

There was an open Q&A after each speaker, questions mostly relevant to the presentation, and at the end there were pre-arranged, timed statements by stakeholders in the audience, representing

various interests for and against the Pristine Streams Petition. Here are a few examples of Public Comments (an unofficial transcript):

1. **Brian Zabcik** (NDS, BCA): ... All these new permits on pristine rivers are because of new population pressure. Liberty Hill is the 'poster-child case' – at one time the San Gabriel was classified as completely pristine. Our conclusions are that the TCEQ does not flat-out forbid any application, approves almost all as is, and won't follow up once permitted. **THIS MUST CHANGE.**
2. **Daniel Wheelis** (Hill Country landowner) Landowners are the primary stewards of the Hill Country and this is primarily a landowner effort. The State is CAUSING landowners to *become* part of the wastewater process. Riverfront acreage is worth \$1000/foot (on each side) – a tremendous investment by Texans, and the State of Texas is fouling the rivers!! **THE STATUS QUO IS NO GOOD ANYMORE.** Let us use the potential authority of the TCEQ to set the rules...

For more details and more public comments, [please click HERE.](#)



IN AUGUST, THE SOUTH LLANO STATE PARK WELCOMES CODY EDWARDS, AS NEW SUPERINTENDENT

My love for the outdoors and outdoor pursuits began for me as a youth when I joined the Boy Scouts. Before that I was very much an

indoor Nintendo playing kid. By the time I got my Eagle Scout in 1999, I knew that the outdoors would always occupy a role in my life.

I graduated with a BA in history from the University of North Texas in Spring of 2008, after a semester-long study abroad trip in Guadalajara, Jalisco. Then to graduate school. I also met my wife, Jamie, the love of my life.

I returned to UNT and graduated with an MA in Texas history in 2012. From 2008 to 2012 I gained experience teaching at UNT and working for the Texas State Historical Association. I began applying for jobs with the Texas Historical Commission, and also for PhD programs. I turned down a job offer with the THC after being accepted into the PhD History program at Oklahoma State University. You only live once, right? There I studied U.S History, emphasis on the environmental history of Texas and the U.S West and a minor in Mexican history. I became interested in the debate between conservation and preservation and U.S conservation policy. Think John Muir and Gifford Pinchot, friends but bitter rivals when it came to their views on conservation versus preservation. During the summer of 2016 my wife and I prepared to welcome

our now five-year-old daughter, Elena, into the world. Long story short, my desire to spend time with family outweighed pursuing a tenure track position. So, I found a paid summer internship with Texas Parks and Wildlife and, after earning an ABD, went to work for the National Park Service at Padre Island National Seashore. I graduated with a PhD in 2017 and returned to TPWD as interpreter at Eisenhower SP after 2 years with the NPS. My ultimate goal was to become a Superintendent.

Next, Goliad State Park and Historic Site (a bucket list park for me) to serve as Lead Interpreter. I left in 2021 for Choke Canyon State Park to be Assistant Superintendent. In August I achieved my goal after accepting the Superintendent position at South Llano River State Park, a place I already knew as a younger man.

I enjoy a range of outdoor activities from camping and hiking to hunting and fishing, specially fishing on the Texas coast. I'm looking forward to learning more about the ecology and environmental history of the Texas Hill Country and becoming the best steward to our natural and cultural resources that I can be.



TOP: LCRA Hydromet Rainfall for this year as of 9.15.22
BOTTOM: River stage as of 9.15.22 (the LLano River system in beige)



Lower Colorado River Authority’s Hydromet is a system of more than 275 automated river and weather gauges throughout the lower Colorado River basin in Texas. The website displays gauges maintained by the City of Austin and USGS. The Hydromet provides near-real-time data on stream-flow, river stage, rainfall totals, temperature and humidity. <https://hydromet.lcra.org>

INVASIVE SPECIES IN TEXAS

ARUNDO DONAX IMPAIRS CREEK HEALTH.

Invasive species like Arundo (giant cane), privet and others can harm Texas creeks and rivers. They devastate habitat and keep our waterways from providing essential ecosystem services, such as recreation, fresh water supply, and drought and flood protection.

DOCUMENTED IN

136+

Texas counties,
most problematic in several Hill Country rivers and along the Rio Grande.



Arundo can grow up to
2 INCHES PER DAY,
crowding out and replacing native plants.

FISHING & BOATING IMPACTS



Arundo and other invasive plants degrade habitat for fish such as Guadalupe bass, the official state fish of Texas.



Blocks access for bank, wade, and kayak fishing, a **\$14-32 million industry** in the Hill Country.

DAMAGE TO RIVER BANKS

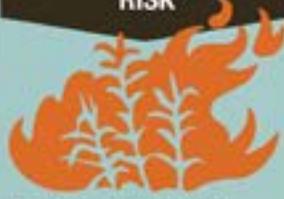


Arundo roots are very weak below the surface, causing river bank erosion.



They crowd out native grasses whose roots reach more than **6 times** deeper, stabilizing banks. An unmowed native buffer acts as a sponge and helps absorb water.

DROUGHT & FLOOD RISK



Arundo's high wax content makes it a wildfire hazard—particularly during drought.

Can increase the area impacted by flooding up to **10%**

Keep our creeks healthy. Prevent invasives:

1 **Don't mow, let it grow**
2 **Let woody debris be**
3 **Plant natives**

Join the Healthy Creeks Initiative: tpwd.texas.gov/HealthyCreeks



Healthy Creeks Initiative to Combat Invasive Arundo
 FOR COMPLETE INFORMATION, Please go to <https://www.llanoriver.org> and then click on the link that reads: **Healthy Creeks Initiative to Combat Arundo**