LRWA Watershed Report

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*Opinions expressed herein are not necessarily shared by LRWA

Will 2025 be the year of collaboration to effectively address Texas Hill Country water related issues?

Guest column from the Friends of the San Saba (FOSS):

As virtually all are aware, explosive population growth within Central Texas has resulted in the Texas Hill Country's unique ecosystem to be bombarded almost daily by activities that adversely impact many of its unique, highly attractive features—while responsible state official actions to thwart such have, for the most part, been either non-existent or inadequate. Just some of these adverse activities are: 1) loss of Jacob's Well to excessive groundwater pumping; 2) closing of stream access at the Blue Hole Regional Park (Comal County) due to insufficient stream flow; 3) variety of illegal dams on streams, especially the James, Llano and Pedernales Rivers; 4) widespread and growing illegal, shallow alluvial well extraction of surface water (i.e. "underflow") resulting in devastation of natural habitats without any affirmative action by TCEQ (ironically, TCEQ has been suing the State of New Mexico in the U.S. Supreme Court since 2013 for exactly the same stream-destructive behavior, while taking no meaningful action against in-state violators); 5) excessive extractions of groundwater in many areas (Edwards & many other aquifer levels at or near historic lows); 6) Pristine Stream Segments across the Texas Hill Country continue to be subject to

More often than not at present

threat of proposed discharge of treated domestic sewage nutrients at concentrations known to be immediately destructive of existing sparkling, clear conditions.

On February 2, 2025, Governor Abbott in his **State of The State Message** to Texans addressed the need for the 89th Texas Legislature to address as an emergency item the long-term funding and other aspects of the Texas water situation. Unfortunately, the FY 2026-2027 Budget Bills filed several days earlier in the Senate (S.B. 1) and House (H.B.1) fail to include any mention of additional revenue to the TCEQ to address the numerous adverse activities which are daily threatening viability of Texas Hill Country streams.

Time is of the essence for a better coordinated and unified effort by the numerous Hill Country entities, many being volunteer, that have been attempting to protect Texas Hill Country uniqueness to directly communicate to state leaders that in a "WATER SESSION" there must be appropriate attention and commitment of corresponding dollars directed to real actions by state regulators at TCEQ to provide meaningful engagements addressing the numerous known and growing threats to Texas Hill County groundwater and streams.

Llano River Watershed Alliance (LRWA), The Edwards Plateau Alliance (TEPA), and Friends of San Saba (FOSS) have commenced the effort for a more coordinated and wider set of voices about the existing situation. This effort has resulted in Hill Country Alliance (HCA) and Texas Southwestern Cattle Raisers Association (TSCRA) lending their voices as to need for appropriate action to protect Texas Hill Country groundwater and stream resources. Hopefully, numerous other entities can quickly become similarly engaged in the days immediately ahead.

Wouldn't this be nice instead?

GOVERNOR ABBOTT APPOINTS BROOKE PAUP AS THE NEW DIRECTOR OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ)

Brooke Paup has served as a Board member of the Texas Water Development Board since February 22, 2018. On April 22, 2021, Governor Greg Abbott appointed her as the first woman chair in the history of the Texas Water Development Board.

Prior to her appointment to the Board, Paup served as the Director of Legislative Affairs for the Texas Comptroller of Public Accounts. She also spent several years at the Office of the Attorney General, where she worked on legislative issues, special litigation, and public finance—notably House Bill 4 and Senate Joint Resolution 1 in the 83rd Legislative Session, which created the State Water Implementation Fund for Texas (SWIFT) and the State Water Implementation Revenue Fund for Texas (SWIRFT). She also served as legislative counsel at the Office of State-Federal Relations in Washington, D.C., under Governor Rick Perry. Brooke has 19 years of state government experience.

She was appointed to the Environmental Flows Advisory Group in 2022 by Governor Abbott and serves as a council member of the Texas Farm and Ranchlands Conservation Program. In 2021, Paup was awarded the Texas Water Foundation's Rainmaker Award, which acknowledges exceptional leaders making lasting impacts in Texas water. She is also the recipient of the 2023-2024 Public Official of the Year Award from the Water Environment Association of Texas.

A member of the State Bar of Texas, Junior League, and Symphony League, Paup earned a bachelor of arts from Texas A&M University and a juris doctor from Texas Tech School of Law. She lives in Austin with her husband, Spivey, and their two children, Henry and Heidi.

ABOUT WASTEWATER...

1. What's a TLAP?

2. What makes a good TLAP versus an ineffective one?

TLAP is an acronym that stands for a **Texas Land Application Permit**, required from the TCEQ if you want to reuse treated wastewater or other "produced water" for irrigation of plants, crops, etc.

From a water quality standpoint, TLAPs are presently considered a good alternative to direct discharge of treated wastewater into rivers, perennial streams or dry creek beds (intermittent streams). TLAPs are also considered a potential benefit to housing developers because TCEQ's approval time can usually be much faster than a direct discharge permit. Why? Because there is usually less protest from conservation groups or neighboing stakeholders, and time is money to developers. However, there are currently no consistent standards for TLAPs, so as you see below, a poorly designed TLAP may not be very effective as far as protecting water quality, be it surface water or even the water in the aquifer below the TLAP field.

According to **David Price, environmental engineer and 2024-25 President of the Texas Rivers Protection Association,** the hydrogeology of these drip fields is important, and the current rules are generally not site-specific enough where TLAPs are proposed. Mainly, an **upgradient topography analysis** is not required, and subsurface water can (and often does) flow past such drip fields. Think of groundwater that is "upstream" of any proposed field, moving through a drip field. Depending on the location and setbacks of these fields, there is potential to effectively have upgradient subsurface flows "flush" the drip fields. Effluent treated to lower levels (and also keep in mind that most do not have phosphorus limits) can then flush through the fields, into setback areas. This, again, depends on location, soil structure, and **restrictive horizons** (the depth at which water is no longer absorbed, and thus moves down-gradient). New permit rules are likely required for potential TLAP fields to have tighter limits on the soil profile (depth/type/water table level), as well as an in-depth analysis of subsurface water movement.

These technical issues are important (or can be), based on location, as in situ soils often proposed can vary in character from site to site, or field to field. If the subsurface flows are enough, extremely fine soil particles can migrate out of the fields, leading to preferential pathways *through* the soil (think of this as an underground "channel" that develops). Drip fields are designed to HOLD the effluent, so it can be mainly dispersed through plant transpiration. As previously pointed out, oversaturation of fields can lead not only to subsurface issues, but surface flows as well, due to the inability of the dosed soil column to properly retain the applied effluent.

Stating a "standard" of effluent (such as phosphorus limits) on such fields does not have any factual basis - according to current knowledge - as every soil is different. Also note that some permits say imported soil will be "blended" with the existing soils. This is a bit of a misconception, as blending a soil does not necessarily lead to a soil that retains the applied effluent in a manner beyond the most restrictive soil that was there in the first place.

Synopsis: "It's Time to Address Water Scarcity in Texas" by Charles Perry

Senator Charles Perry (Lubbock, District 28), Chair of the influential Water, Agriculture, and Rural Affairs (WARA) Committee of the Texas Legislature, spent 2024 traveling throughout Texas to generate support for an overhaul to the state's approach to water, perhaps the most ambitious in modern state history. In a November 2024 press release, Perry quoted data from the 2022 State Water Plan that showed a water shortfall of up to 5.74 million acre-feet per year by 2050 (and 6.86 million acre-feet by 2070) if the state's persistent drought conditions continue. Agricultural and non-ag businesses alike have already suffered or shut down because of declining water supplies, a warning trend that will likely lessen new businesses coming to Texas, in turn negatively affecting the Texas economy.

What Perry is calling for is a much, much bigger pipeline of state tax dollars to go to water, helping water agencies and cities buy more water, and update and create new water infrastructure. All doable, but very expensive.

Specifically, Perry will be asking the 89th Texas Legislature for up to $5 billion. He says it will help every county, region and community in the state. Besides repairing and improving infrastructure, Perry also said the plan will develop new water supply sources, namely *"via marine desalination along the coast, brackish desalination across the state, produced water from West Texas oil and gas fields, and surface water acquisitions where available both in Texas and elsewhere."* New infrastructure will necessarily follow, all expensive.

Perry says all this will require a "large down payment in the form of an appropriation from the surplus the Legislature is expected to enjoy this session" and a new dedicated funding stream must follow, similar to the State Highway Fund used for transportation projects as mandated by the Texas Constitution.

A recent survey of Texas voters taken Nov. 16-20, 2024, by the policy think tank Texas 2036, showed that 85% of registered voters are indeed concerned about future water shortages.

Note: Perry was behind the $1 billion proposition passed in last fall's election that set up the **Texas Water Fund**, considered by advocates as important but merely a first step.

DID YOU KNOW?

Why are oceans salty but lakes are streams are not?

Most water is at least a little bit salty, even in freshwater rivers and lakes. Salts dissolve into water as water moves through soils and rocks. But the water in lakes and rivers is constantly coming and going, with rainfall, snowmelt and groundwater keeping the supply relatively fresh. This freshwater (and any salt it contains) eventually pours into the ocean, but the only way that water leaves the ocean is through evaporation. This leaves the salts behind, making the salt concentration much higher. The ocean is saltier in places where it's warm and evaporation is high. We also find salty water in inland lakes where there is no outlet, such as the Great Salt Lake in Utah and the Caspian Sea. (Compliments of Rebecca Hale, senior scientist, Smithsonian Environmental Research Center, Dec. 2024)

PEDERNALES RIVER ALLIANCE (PRA) CELEBRATES MAJOR WINS !

YEA FOR OUR TEAM!

As we all know, the Texas Hill Country is one of the fastest growing regions in the nation. For example, population in Gillespie County has grown by nearly 50% in the past 20 years and is expected to grow another 35% in the coming 20 years. According to PRA representative, **Deb Youngblood,** in Gillespie County alone, a staggering 7,588 new lots or units are currently proposed or under construction, according to the Gillespie County Economic Development Commission.

To address increased housing needs, there has been a similar increase in subdivisions and manufactured home rental communities (MHRC) popping up in unincorporated areas, where there is almost no land use planning authority to help guide and manage growth. Lower land prices, lower taxes, and the appeal of "country" living drives much of this growth. Further, for developers, the lack of county regulations is attractive. Only changes in state law can give counties the tools to effectively address the myriad of challenges from rapid growth. And there is no guarantee when that will take place.

The Gillespie County Engineer and County Commissioners may not have many tools to work with, but one tool they do have is the authority to change the density of lots and spaces in new developments. **On December 23,** upon request by the **Pedernales River Alliance** and after a well-coordinated presentation, the Gillespie County Commissioners voted yes to doubling the minimum lot size for RVs and tiny home communities: a minimum of 6 acres for any community with MANUFACTURED HOMES. Deb Youngblood (PRA) called it "a step in the right direction," signaling to developers and officials that the PRA will be paying attention and give opposition when called for.

THEN, around Jan. 21, the Pedernales River Alliance received word of another important victory—since the summer they had been opposing a permit for Arch Ray Resort to discharge 35,000 gallons per day of wastewater into the Pedernales River. Thanks to the efforts of PRA and cooperation from the land owner - developer of the Archway project, 100% of the treated wastewater effluent will now be reused onsite.

This is a big win as it addresses the main objections to the original permit application for direct discharge into the Pedernales, among them that water flow in the Pedernales River is not consistent enough to support an increase of effluent; the Pedernales River is a recharge zone for the Ellenburger aquifer which provides most of the drinking water in Gillespie County; and the Pedernales has been declared a critical habitat for endangered fatmuckets, a species of freshwater mussels.

David Price, PE, and his group, AusTex Development, will design the zero-discharge system. Price is also President of the

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Followup to the "Yea For Our Team!" story in the LRWA November 24, 2024 Newsletter:

Just want to let everyone know that the Administrative Law Judges recommendation to DENY (based on numerous failures) Aqua Texas's request for an $8.8 million annual rate increase… was **unanimously CONFIRMED on Jan. 31 by the Public Utility Commission of Texas (PUC)!**

"This is a major victory for 170,000 Aqua Texas ratepayers," said David Baker, Executive Director of the Watershed Association. "The Commission's decision sends a clear message that utilities must properly document and justify their expenditures before passing costs on to customers."

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Texas River Protection Association. All who know his work anticipate that Mr. Price will design a wastewater system that will be an example to be followed by future developments.

Archway LLC, which proposes to operate Arch Ray Resort, a winery including a wine tasting room, brewery, and hospitality services facility, is a project of the Baxter family, owners of the property who have been ranching near Lampasas for six generations. This successful outcome to what was a contentious issue is in no small part due to the deference that the Baxters accorded the history and character of this former ranchland.

* Parts of the synopsis above derived from a Guest Column by Katherine Peake in the Fredericksburg Standard, Dec. 11, 2024, recent comments by Deb Youngblood of the Pedernales River Alliance, and a Jan. 23 press release from the Greater Edwards Aquifer Alliance.

The website for the Pedernales River Alliance is https://www.pedernalesriveralliance.org/

JUST A LITTLE SOMETHING ELSE TO WORRY ABOUT... (you're welcome)

Despite what you may have heard, karst systems mostly do not filter water (you know... the gravel, limestone, etc. surrounding your alluvial well's underground stream). Thus, the direct discharge of wastewater effluent into streams that recharge these karst aquifers conveys directly into our aquifers whatever constituents are not removed by the wastewater plant's treatment process.

Constituents that are not commonly removed by wastewater treatment processes include PFAS (a group of more than 4,700 fully synthetic compounds that are widely used in industrial and manufacturing processes and found in many consumer products) and emerging contaminants. In light of the recent concerns about contamination from PFAS in wastewater discharges, we are newly concerned about impacts on private and public water supply wells, land and crops watered with wastewater effluent, and the health of aquatic wildlife.

New grassroots advocacy group: *COMFORT NEIGHBORS*

(Based in Comfort, Texas) Comfort Neighbors organized to mitigate a new 1100 home development on 600 acres called **Comfort 590**, TCEQ draft permit proposed by **Lennar Homes.** According to **Annalisa Peace, Director of GEAA** (Greater Edwards Aquifer Alliance), the permit asks for a direct discharge of 600,000 gallons of treated wastewater into Cypress Creek that leads to the Guadalupe River, that contributes to the **Trinity Aquifer Recharge Zone**, as well as draw 250 gallons of groundwater per day, threatening to deplete the already overdrafted Cow Creek formation of the Trinity Aquifer. Two town hall meetings have been held in Comfort so far, the most recent on Jan. 25.

Note: Lennar Homes is already pursuing a contested 2900-home subdivision on 1100 acres of the **Guajolote Ranch** near the city of Grey Forest, over the karstic **Edwards Aquifer Contributing Zone,** the drainage area of the Edwards Plateau that contributes surface water and groundwater to the **Edwards Aquifer Recharge Zone,** according ot the U.S. Geological Survey. Moreover, GEAA (Annalisa Peace, Director) reports violations by Lennar Homes of past settlement agreements concerning previous developments. For More Information, Click here and choose the PDF: **GEAAOpEd_SAExprNews_Jan1.**

GEAA Water Wonks Webinar 1/22/25

THE HISTORY OF FLOODING: THE EDWARDS PLATEAU, LAND, WATER, AND DEVELOPMENT

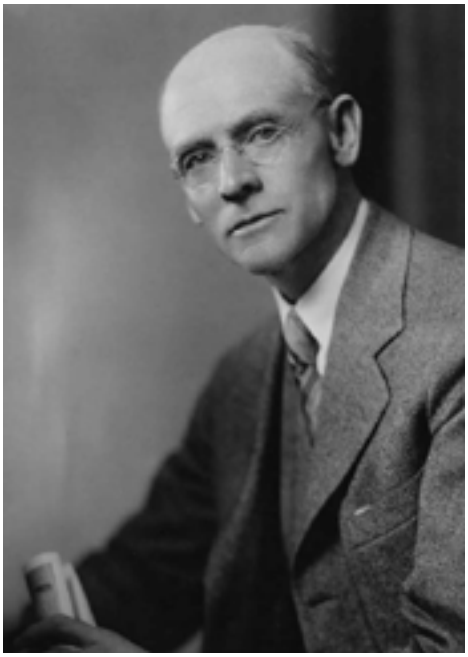
SPEAKER: Dr. Char Miller, W.M. Keck Professor of Environmental Analysis & History, Pomona College, CA. (Note: Miller previously taught at Trinity Univ., San Antonio)

We get a "geographic landscape" from maps, such as geographic and topographical info and county lines, but they cannot give us "place" information, the type of information only gleaned as observers. As observers, we see the land as individuals, i.e. our lived experience, with all the different sets of tensions between the land's uses, our needs, our aspirations & desires, past to present.

Keeping that in mind, now as then the ***relationship between upstream and downstream*** must be recognized and respected. Because of nomadic, seasonal travels, indigenous peoples understood the flow of the rivers and streams and how they connected...

CONFLUENCE

William L. Bray (1865-1953), botanist. Grew up in Missouri. Came to Texas ca. 1897. He was an Easterner/Midwest new to Texas, and traveled across Texas and observed.



It was in Texas that he made his mark and became the state's leading scholarly promoter of a deeper understanding of its diverse ecosystems and the pressing need to conserve these varied resources. Bray was one of the first in Texas to simply walk about and observe how the landscape changes and WHY (example: the results of clear-cutting wood for fuel), how gullies begin by the erosive flooding of denuded hillsides. Or that typical clear-cutting practice of the time meant what wasn't needed was simply left behind, giving periodic natural fires that much more fuel to burn.

He studied the botanical resources, especially timber, and came to recognize the environment preferred by these resources, especially in light of how humans utilized the Plateau - causing alterations that led to floods, such as in the buildup of silt that in turn caused dam failures. People would always be an important part of this dynamic.

FIG. 1.—CEDAR BRAKE NEAR AUSTIN TWENTY-FIVE YEARS AFTER FIRST CUTTING.
A heavy crop of fuel and charcoal. Shows capacity for reforestation.

Bray also observed regrowth after overgrazing or clear-cutting, and was one of the first to use photographs to compare the contrast between landscapes denuded by humans and a before photo of the natural vegetation. He then showed how heavy rain had vastly different responses to the changed landscape, quickly deducing that destructive floods happen to denuded landscapes while flooding is normally mitigated by natural vegetation. Bray was the first to figure this out and especially to understand the inter-relationships between the Texas watersheds all the way to the Gulf.

Bray wrote two reports as of 1904 about Texas and the Edwards Plateau, assessing different interactions. *"It will rest with the cattlemen of the plains and the ranchmen of the hills*

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whether their pastures are worn out by overgrazing and their hills denuded by unwise cutting." – The Timber of the Edwards Plateau (report), 1904. Bray also wondered: "What happens to the soil?" Consequently he became one of the first to be interdisciplinary, talking to other specialists. He concluded that COLLABORATION was needed by all users of the land, and some form of regulation and control was needed. That eventually would lead to the creation of the US Forest Service – promoting conservation upstream and downstream.

Another important pioneer at about the same time was **W.W. (William Willard) Ashe** (1872-1932), an American forester and botanist, early proponent of conservation in the southern United States.

W.W. Ashe: *"To secure permanently in water storage, there must be a reduction of soil erosion to a minimum, secured through the protection of the forest cover in the central portion of the State in gorges, along flood plains, on mountain slopes and ravines, as well as through maintaining good soil cover on the ranges."*

In a Sept. 16, 1921 San Antonio Express article, Ashe replicated what Bray had said about the interaction of the different parts of the watershed. For example, he said that natural vegetation was needed on both the higher ground and its immediate downslope. If logging and grazing could be controlled, then flooding would be less. All ecosystems were interrelated. San Antonio could change the geography within the city limits but that was not enough to prevent disasters like in 1921.

Note the **Great Flood of San Antonio in 1921,** {BELOW) picture of the Gunter Hotel and St. Mary's Street traversed by military row boats.

Big lesson of what not to do:

By 1920, the Army Corps of Engineers was put in control of flood control and they weren't talking to other disciplines and observers.

Dr. Miller also mentioned the **Weeks Act of 1911:** a law that established national forests in the eastern United States and authorized the federal government to purchase land for conservation. Named after Massachusetts Congressman John Weeks, concerned about the damage logging was causing to the White Mountains.

What the Weeks Act did:

- Protected watersheds in the eastern United States from further development.
- Created the first national forests, 52 national forests in 26 eastern states. Mandated conservation ethics on some 20 million acres of national forests and grasslands.
- Established cooperative agreements between the Forest Service, states, and private landowners to fight forest fires.
- The Weeks Act was used to buy land from upstream to protect the downstream areas, although it took some time for this to actually happen due to lack of political will on the state level (anti-federal sentiment) – but all this would eventually lead to the State Park system.
- Legacy: The Weeks Act is considered one of the most successful land conservation efforts in the United States, and is still used today for combating climate change, protecting endangered species, and managing urban forests.

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DOES THIS SOUND FAMILIAR?

"… combination ranching will become more intense as time passes …under the pressures of rising land values and increased use of capital equipment." – William M. Chambers, Economic Geography, 1932.

ESPECIALLY IN THE HILL COUNTRY, a Texas History of Ranching should NOT exclude SHEEP and GOATS, that of course affected the landscape especially when not managed correctly...

"At one time, Texas was the world capital of natural fiber."

At the peak, there were over 10 million sheep in Texas in 1943 (mostly because of the needs of the war effort, WWII).

1850: 100,530 sheep

1865: 753,000 sheep

1880: 3,715,000 sheep

1885: 6,620,000 sheep

2000: 1,130,000 sheep

1900: 100,000 goats

1965: 4,612,000 goats

2000: 345,000 goats

What finally slowed this industry? Synthetic fibers…

RECENT LAND DEVELOPMENT IN TEXAS

As we all know by now, between 1997-2012 and beyond, agricultural land has significantly decreased in the Edwards Contributing and Recharge zones, replaced by subdivisions. Subdivisions are usually built on higher ground and are covered with water-intensive grass, impervious cover, and storm drains that dump all excess water along with various forms of pollution into dry creeks and streams. With an explosion of population in the Hill Country, affordable housing needs are inevitably pushing high-density housing, that **must be managed carefully with conservation in mind,** especially protecting the quantity and quality of groundwater and surface water.] For example, a major problem today is treated wastewater dumped into waterways with human recreational use.

Note the unfortunate relationship between highways and developments. Access creates opportunity. Urban sprawl... we don't seem to have suburbs any more, but instead new communities in previously uncorporated areas, and many absentee landowners. Dr. Miller also noted how increased population follows the Permian Highway Pipeline.

Dr. Miller: "*anything* we do that has the goal to not just benefit us, but also other species and Nature is crucial!"

And WE must rethink all of this NOW or we will not have learned at all from Bray's and Ashe's realizations of the early 20th century. And note that today our problems are GLOBAL (climate change), not just statewide or watershed-driven.

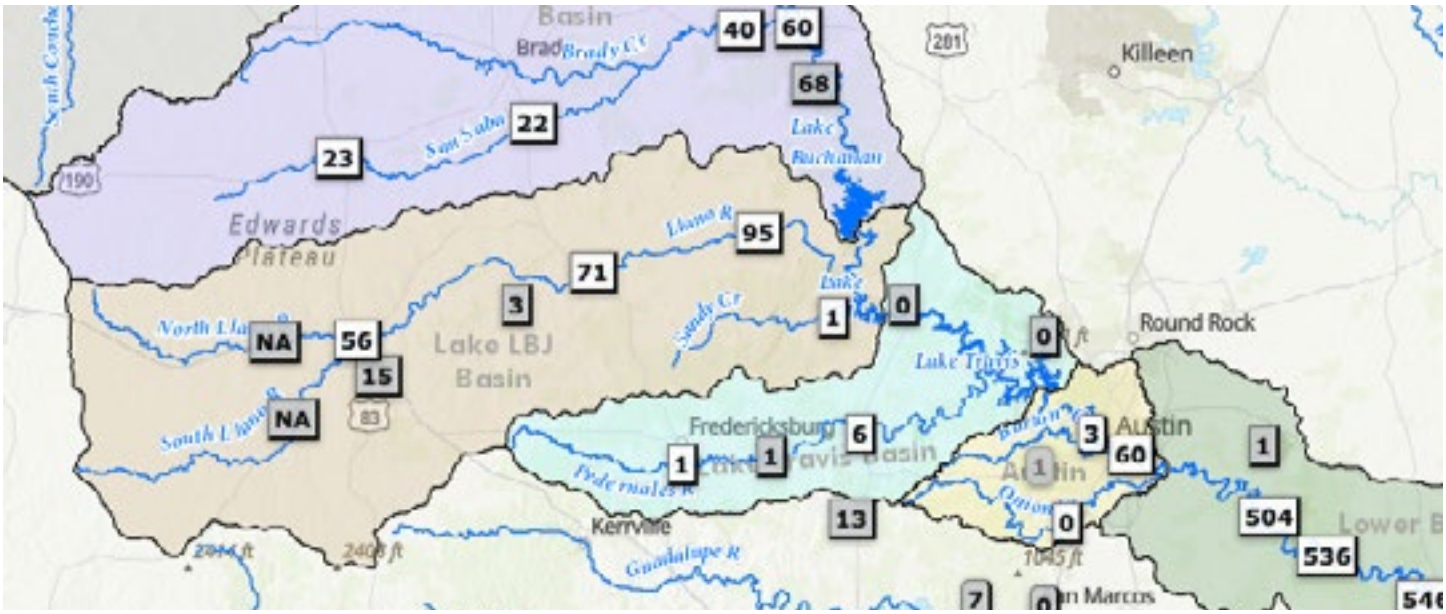
Dr. Miller concluded by: *"If we can ruin the landscape and write stupid policies, we can rewrite them away!"*

[Editor's Note: AT OUR STATE CAPITOL, 2025 IS A LEGISLATIVE SESSION. WE MUST PAY ATTENTION and ADVOCATE! Please get to know your respective Representatives and Senators]

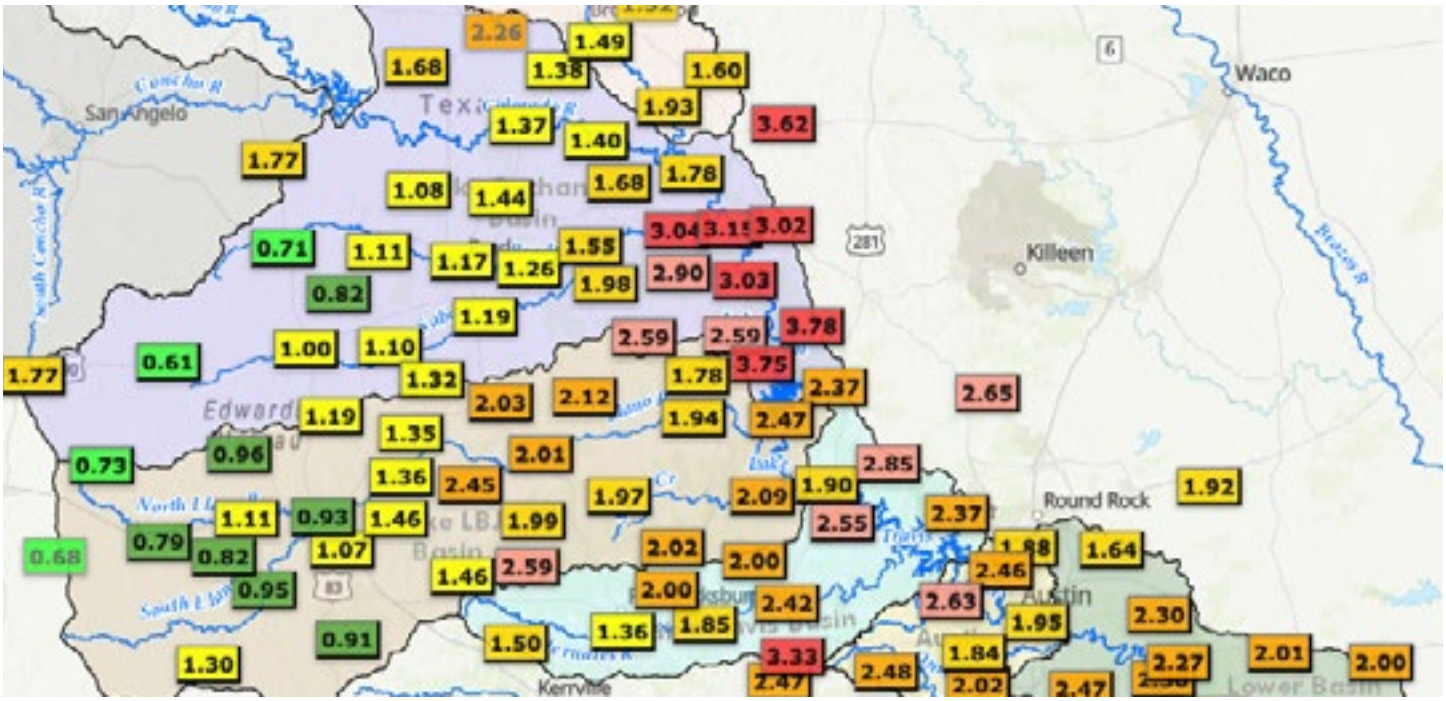
Healthy Creeks Initiative to Combat Invasive Arundo

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

LCRA Hydromet Stream Flow as of 2.3.25



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.



LCRA Hydromet Rainfall last 30 Days as of 2.3.25