

60+ Wells Report

KARST AND HILL COUNTRY WELLS

INITIAL RESULTS FROM THE NEIGHBORHOOD SITE VISITS

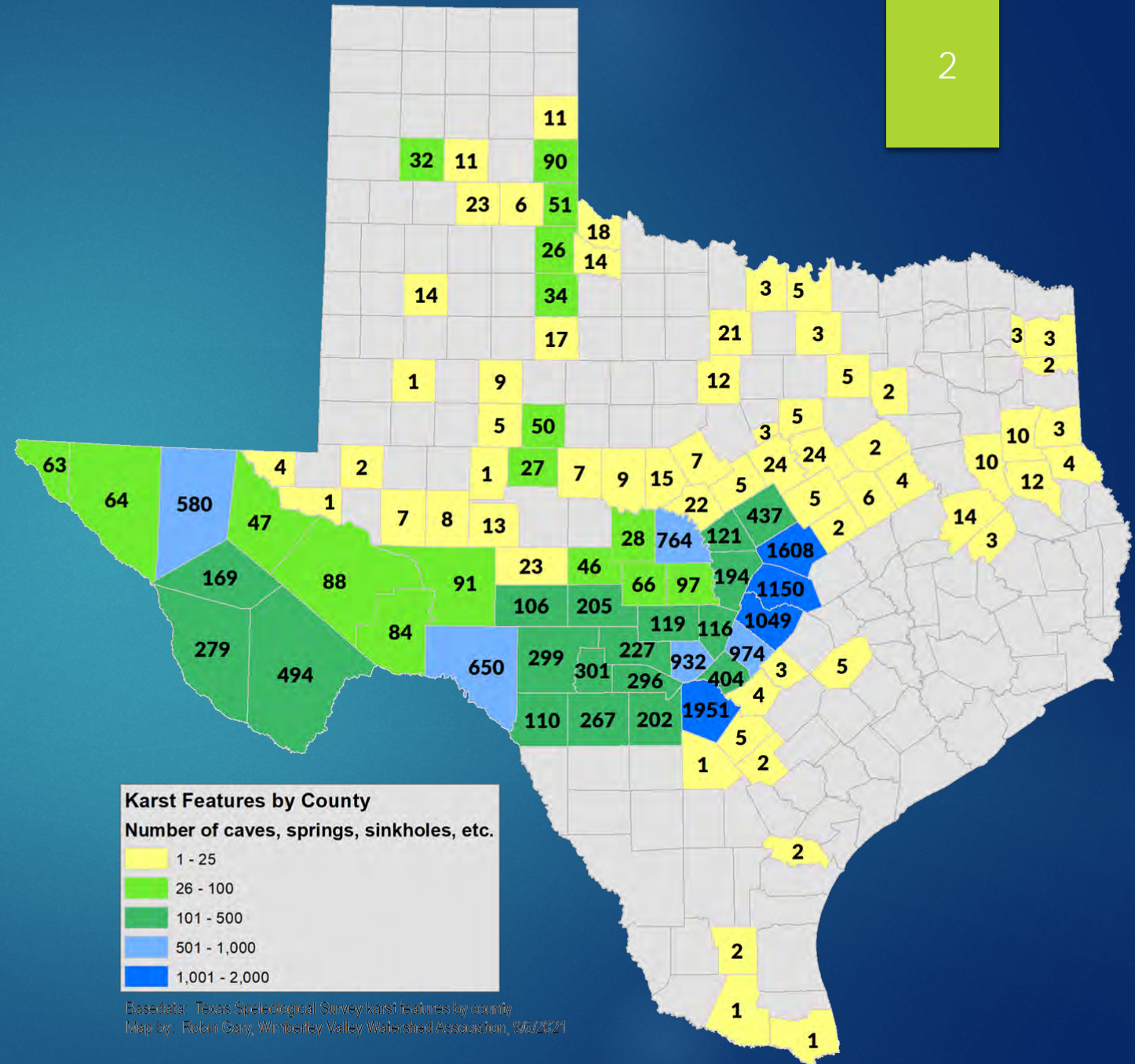
Robin Gary

Wimberley Valley Watershed Association

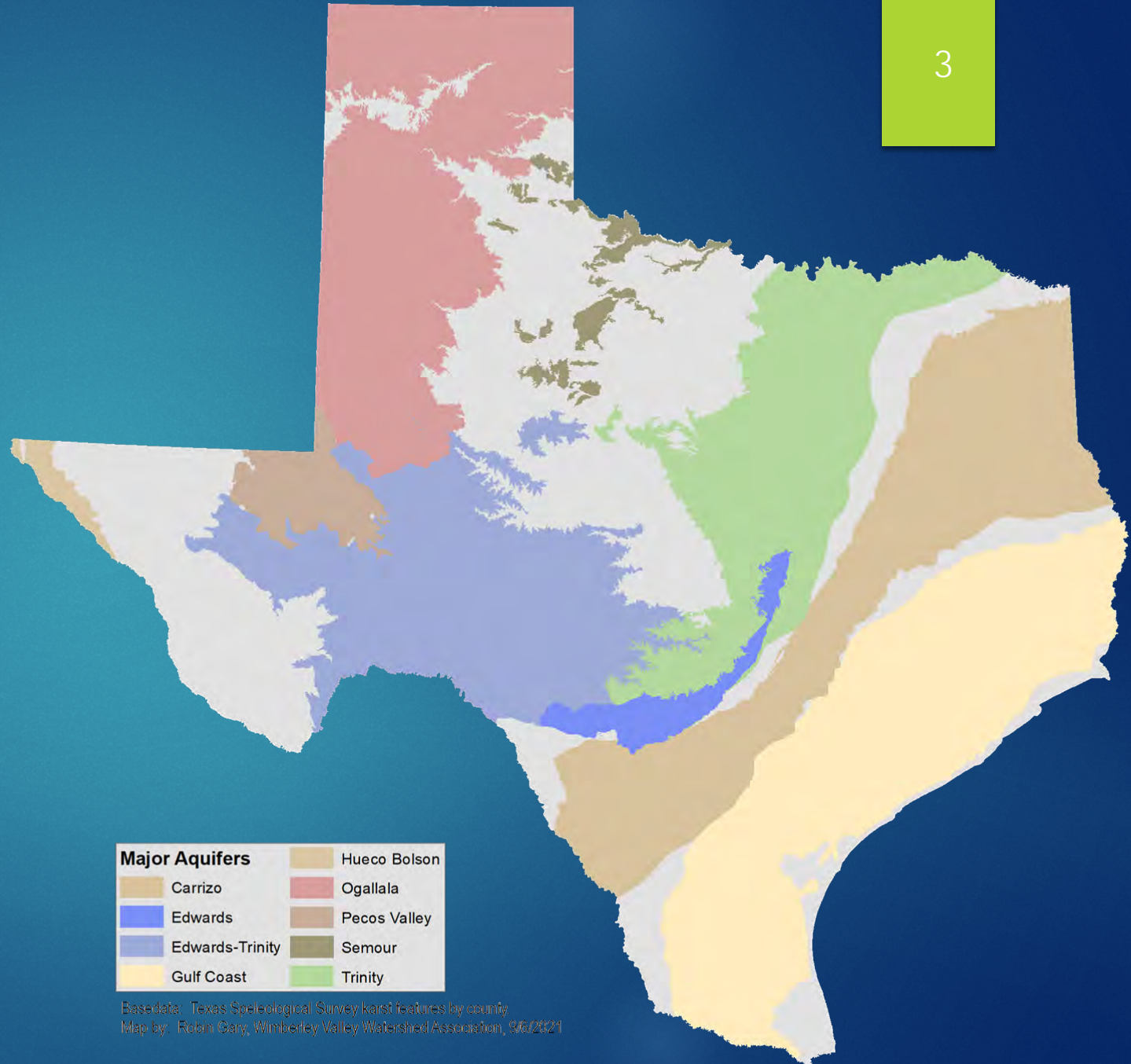
robingary@wimberleywatershed.org



Texas Karst



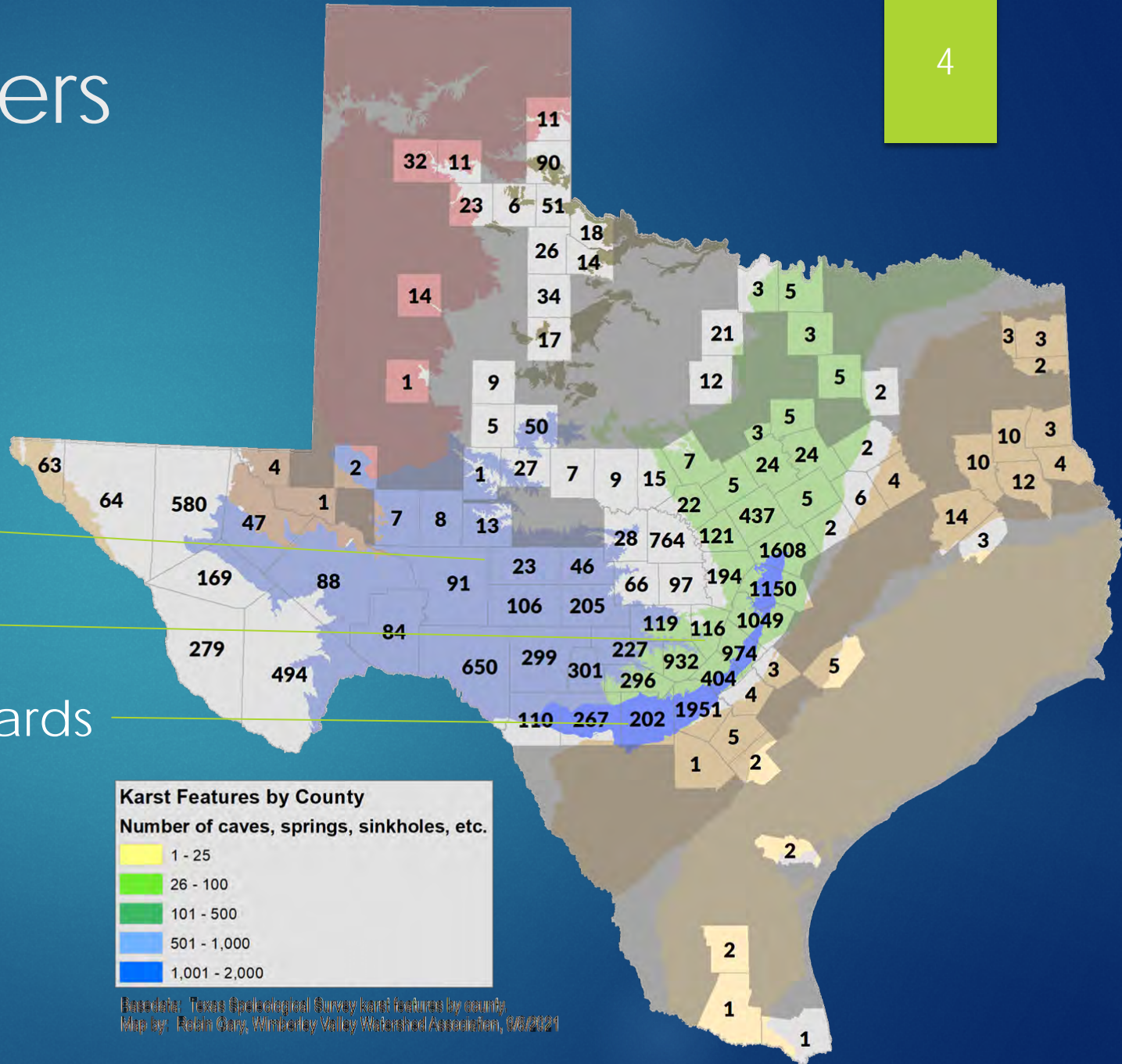
Texas Aquifers



Basedata: Texas Speleological Survey karst features by county
Map by: Robin Gary, Wimberley Valley Watershed Association, 9/6/2021

Texas Karst Aquifers

Edwards-Trinity
Trinity
Edwards



Karst Features by County	
Number of caves, springs, sinkholes, etc.	
1 - 25	Yellow
26 - 100	Light Green
101 - 500	Medium Green
501 - 1,000	Light Blue
1,001 - 2,000	Dark Blue

Based on: Texas Speleological Survey karst features by county
Map by: Robin Gray, Wimberley Valley Watershed Association, 9/9/2021



THE WATER FLOWS,
THROUGH ROCKS & HOLES
*Deep in the
Karst
of Texas*
WWW - TSPA EDUCATION CAMPAIGN

WHAT IS
KARST?

#DeepInTheKarstOfTexas



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TYPES OF
KARST FEATURES:
CAVES

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Photo credit: Dr. Jean Krejca,
Zara Environmental LLC



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TYPES OF
KARST FEATURES:
SPRINGS

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Exploration Team Diver in Jacob's Well, Photo: Jesse Cancelmo

Find out more at **Karst 101** at www.WimberleyWatershed.org/karst



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WHAT IS AN
AQUIFER?

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Photo credit: Cow Creek Limestone, Photo by Robin Gary, WWA



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WHAT IS A
**KARST
AQUIFER?**

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Photo credit: Jacob's Well Exploration Project



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HOW DOES A
KARST AQUIFER
RECHARGE?

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Photo credit: Zara Environmental, LLC

Or take a hike at a **Karst Walk** near you! Blue Hole Regional Park is hosting the Karst Walk all September.

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KARST AQUIFER
WELLS

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Neighborhood Site Visits Trinity Aquifers

- ▶ Free
- ▶ Water level measurement
- ▶ Basic water chemistry
- ▶ Nitrate/nitrite screening

- ▶ Collaboration between:
 - ▶ Wimberley Valley Watershed Association
 - ▶ Comal Trinity Groundwater Conservation District
 - ▶ Hays Trinity Groundwater Conservation District.

2021 Well Owner Neighborhood Site Visits
July & August 2021
www.WimberleyWatershed.org/SiteVisits

Dear Well Owner,

Free water-level and water-quality screening site visits are scheduled in your area. This year's program is a collaboration between the Wimberley Valley Watershed Association, Hays Trinity GCD, and Comal Trinity GCD and will provide free site visits for water-well owners. The four areas include:

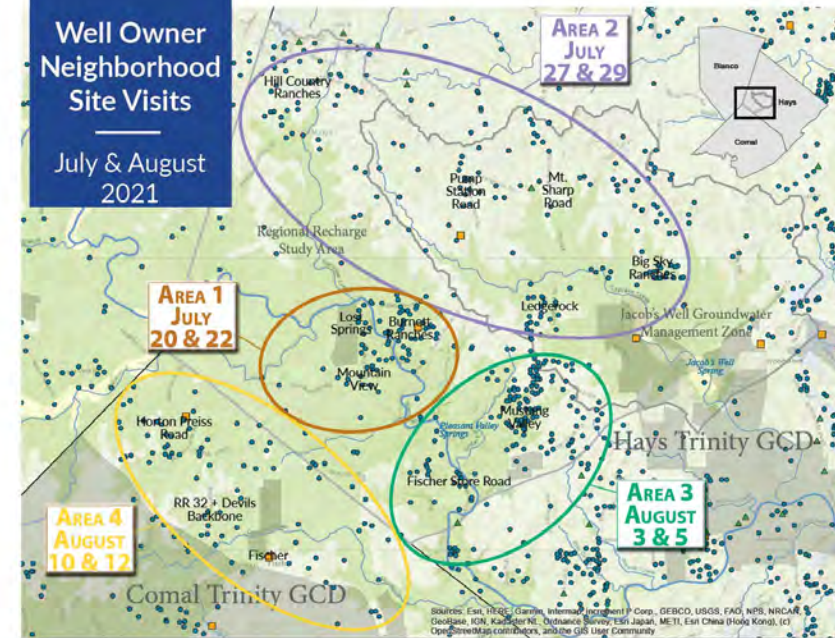
Burnett Ranches, Mountain View, Lost Springs (Jul. 20 & 22)
Hill Country Ranches, Ledgerock, Pump Station (Jul. 27 & 29)
Mustang Valley, Fischer Store Road (Aug. 3 & 5)
Fischer, RR32, Devils Backbone, Horton Preiss (Jul. 21 & 28)

Sign-up: www.WimberleyWatershed.org/SiteVisits

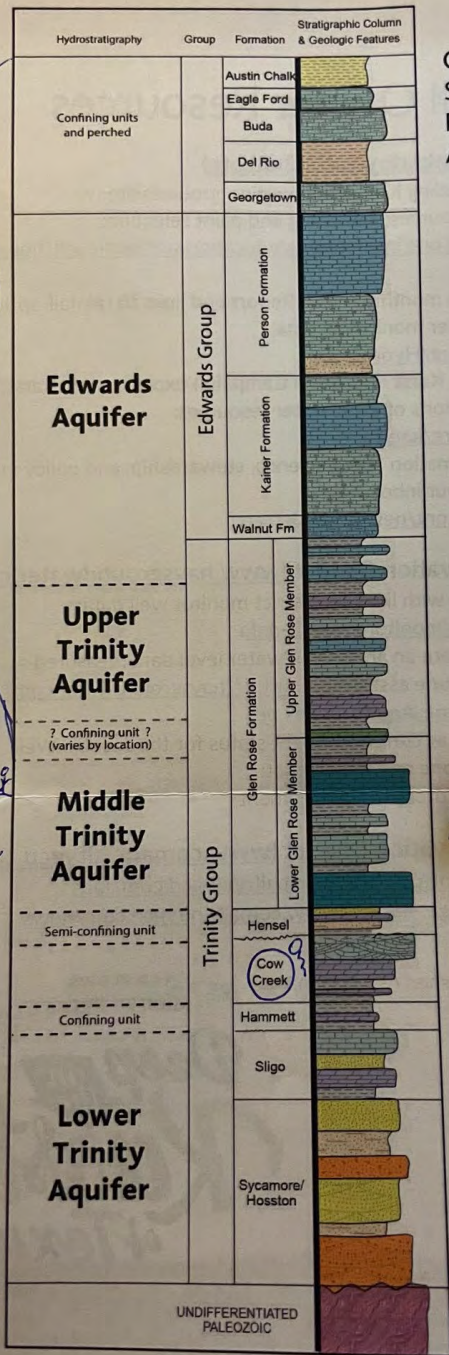
During visits, staff will take a water-level measurement (if possible), and measure basic water quality. Spots are limited. Details and sign-up online.



Well Owner
Neighborhood
Site Visits
July & August
2021

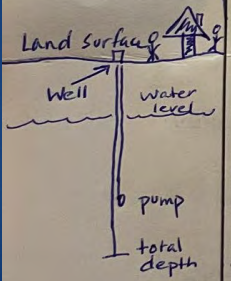


[WWW.WIMBERLEYWATERSHED.ORG/SITEVISITS](http://www.WIMBERLEYWATERSHED.ORG/SITEVISITS)



Generalized Stratigraphy of the Edwards and Trinity Aquifers

eroded away



Explanation

- Chalk
- Limestone (micritic)
- Limestone (skeletal, grains)
- Limestone (reef)
- Dolomite
- Shale/marl
- Gypsum/anhydrite
- Siliciclastic (silt, clay)
- Siliciclastic (sand, silt)
- Conglomerate

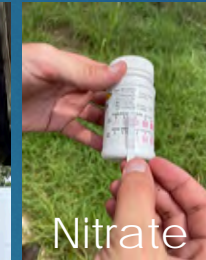
Figure modified from Wierman et al., 2010
 Stratigraphic notes:
 1 - Edwards Group, Kainer Fm, as defined by Rose (1972).
 2 - Ages and sequence boundaries from Scott et al. (2007).
 For additional detail, see Hydrogeologic atlas of the Hill Country Trinity Aquifer, Blanco, Hays and Travis Counties, central Texas, Plate 2: Stratigraphic Column and Type Geophysical Logs
<http://repositories.lib.utexas.edu/handle/2152/8977>



Well owner conversations



Water level measurement



Nitrate



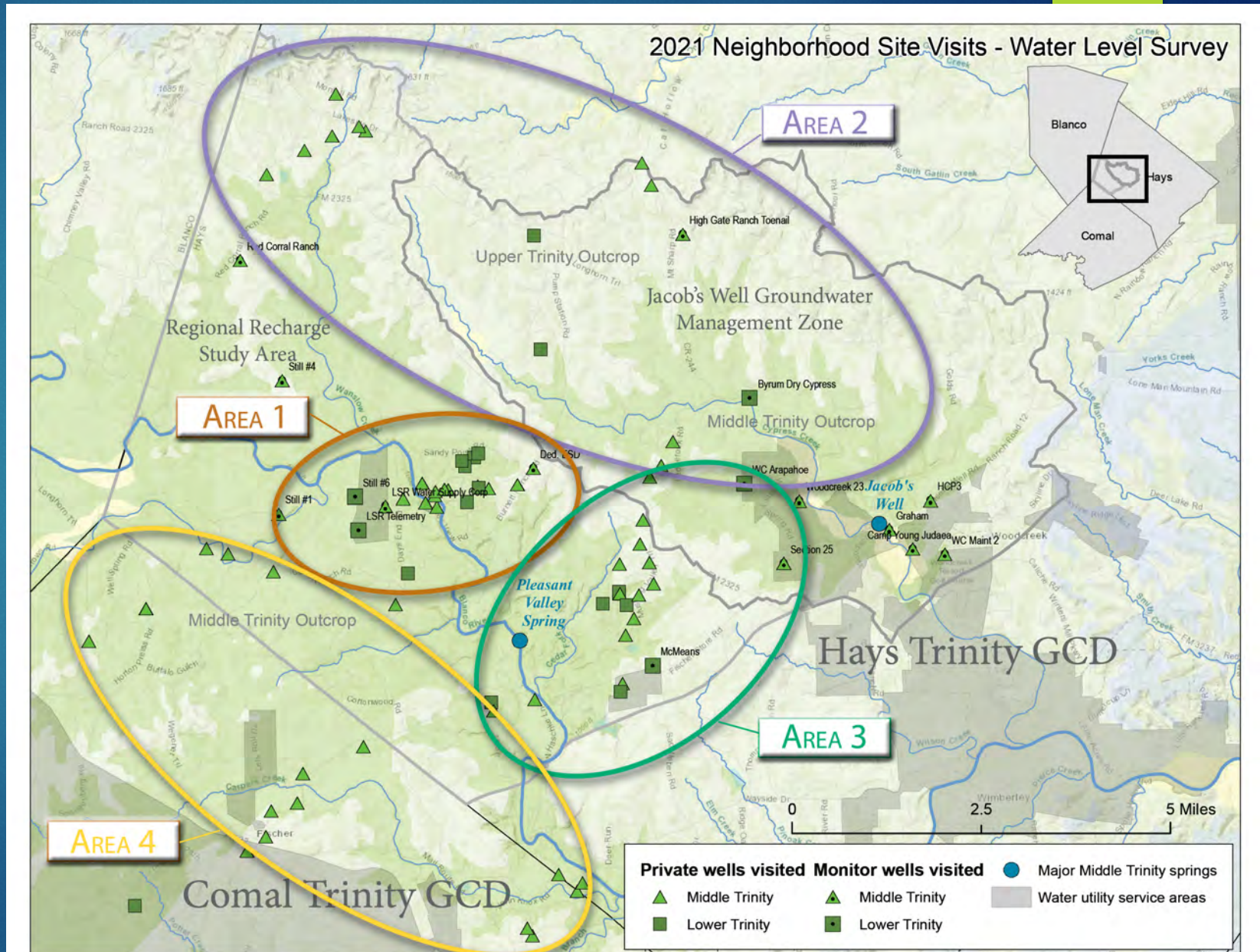
Water quality measurement



Recon for measurement sites

4 weeks
68 private wells
17 monitor wells

61 Middle Trinity
21 Lower Trinity

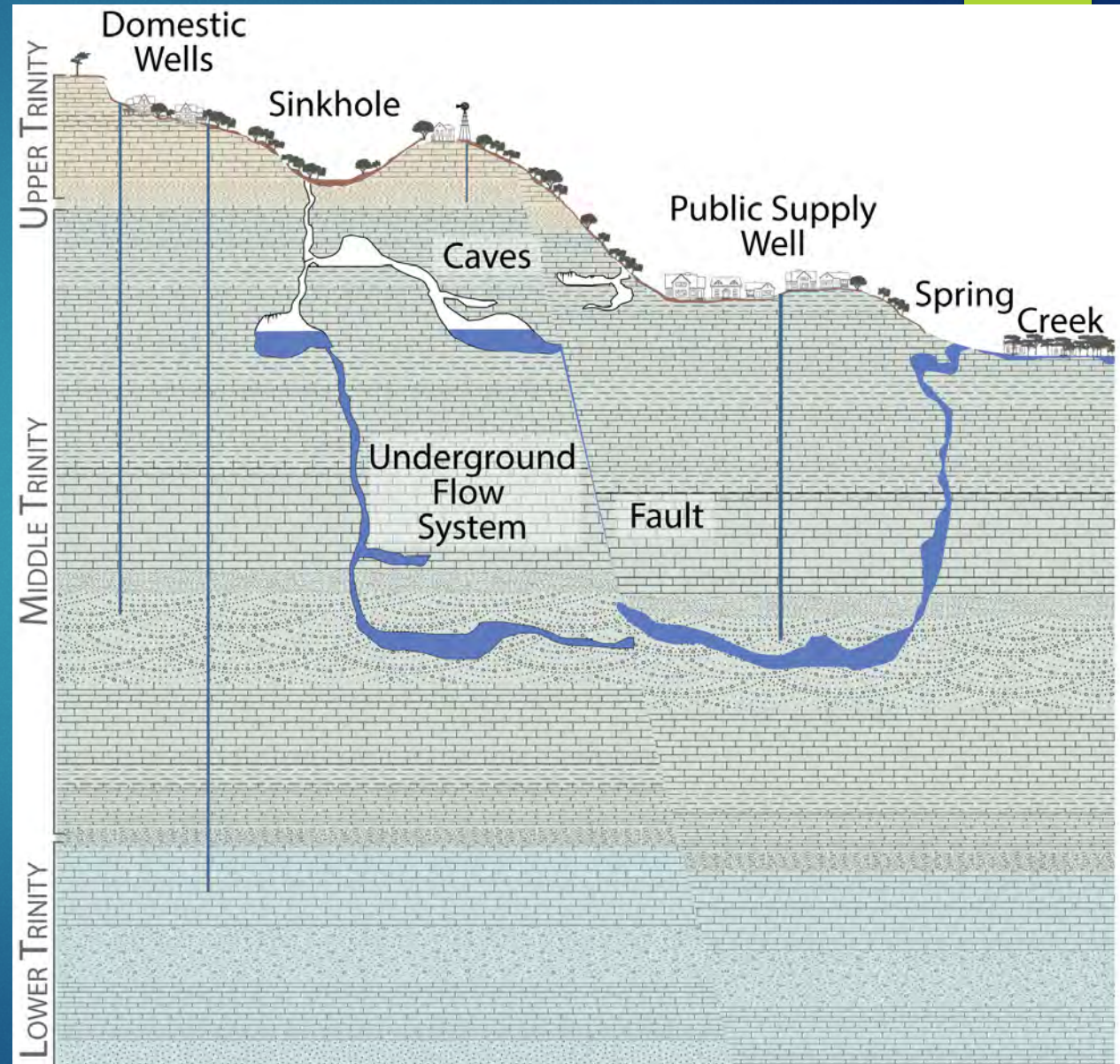


Middle Trinity Wells

- ▶ Open flow system
- ▶ Rapid recharge
- ▶ Springs indicator of conditions
- ▶ Well Depths: 148' – 540'
- ▶ Depth to water: 54' – 370'
- ▶ TDS: 230 – 966 ppm
- ▶ Nitrate (highest): 5 ppm

Lower Trinity Wells

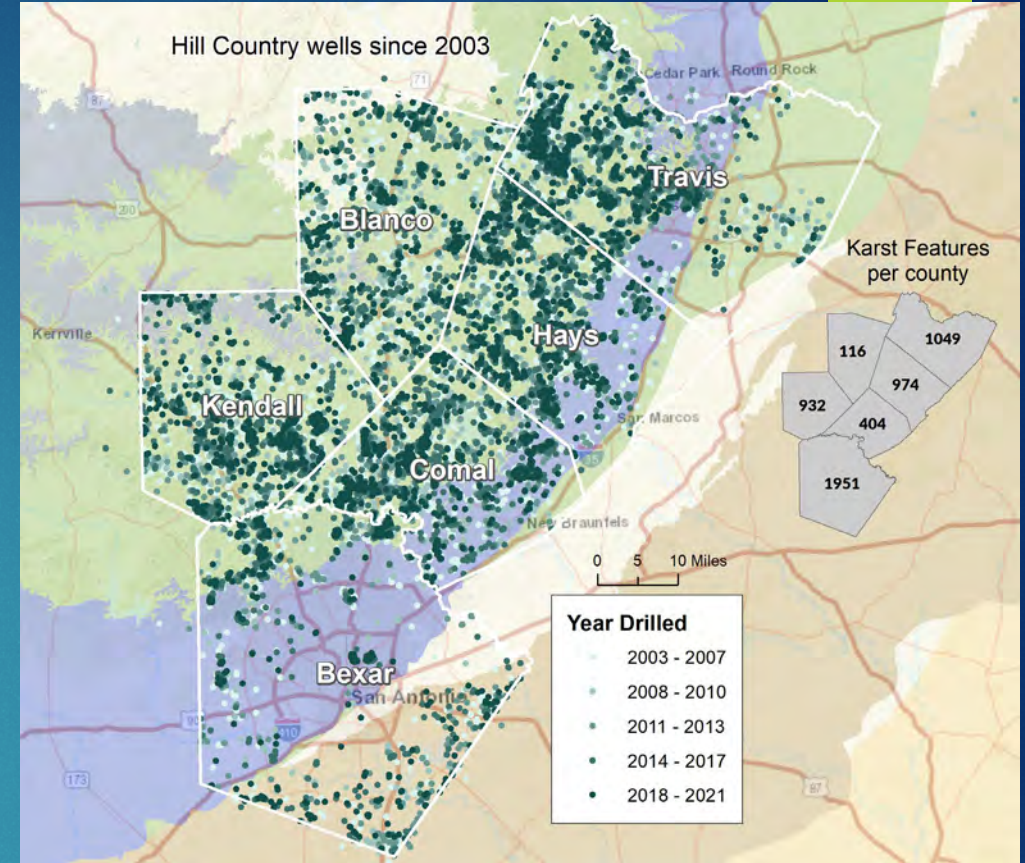
- ▶ Closed flow system
- ▶ Fewer number of wells
- ▶ Need additional monitoring sites
- ▶ Well Depths: 385' – 730'
- ▶ Depth to water: 127' – 374'
- ▶ TDS: 1,217 – 3,851 ppm
- ▶ Nitrate (highest): 1 ppm



Why does this matter?

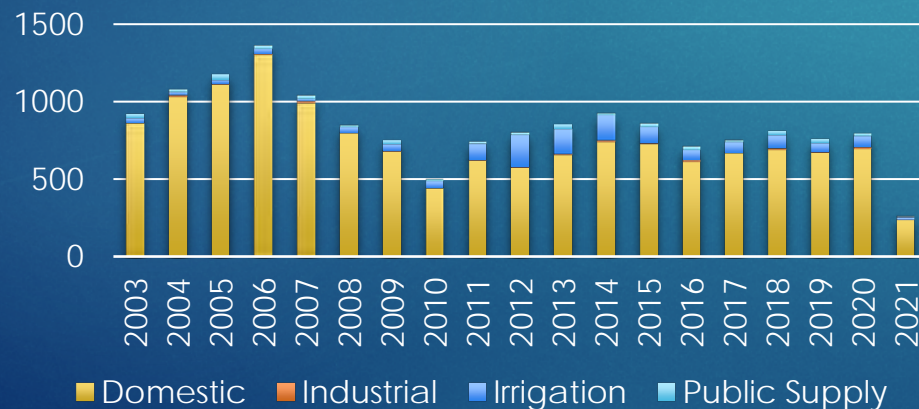
Challenges

- ▶ Drought
- ▶ Population increases
- ▶ Springs, creeks, rivers and water supplies are connected



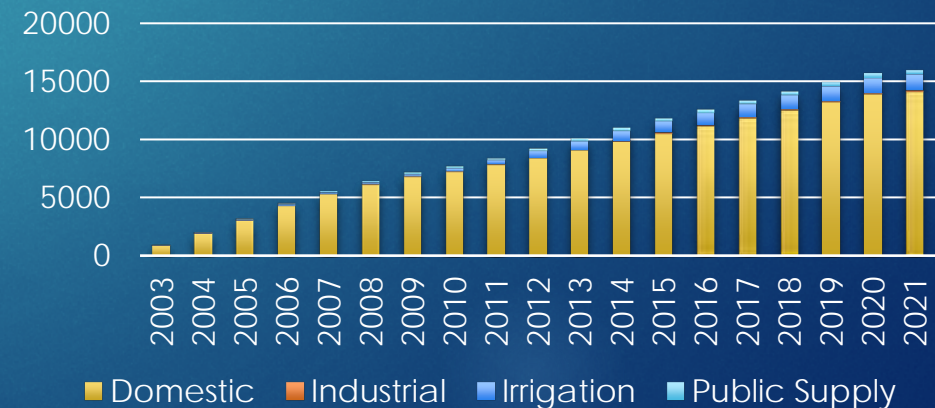
Wells drilled each year

(Kendall, Blanco, Bexar, Comal, Hays & Travis)



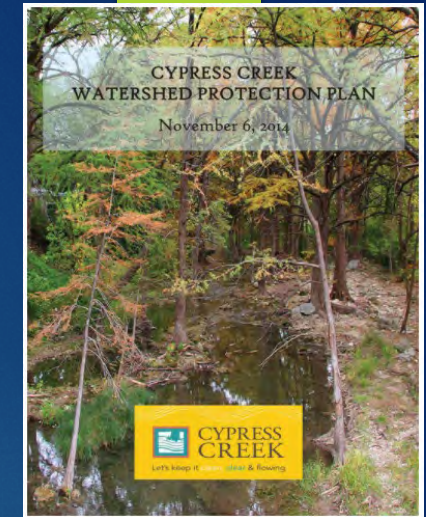
Wells since 2003

(Kendall, Blanco, Bexar, Comal, Hays & Travis)



Opportunities

- ▶ Good policy needs good science.
- ▶ Science needs to be accessible to be meaningful.
- ▶ Good stewardship goes a long way.
- ▶ Karst rocks!



Thank You!

Well owners &



WimberleyWatershed.org/SiteVisits

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The Water Protectors Fund
Science. Education. Advocacy. Legal.