20 Years of the Water Quality Protection Lands

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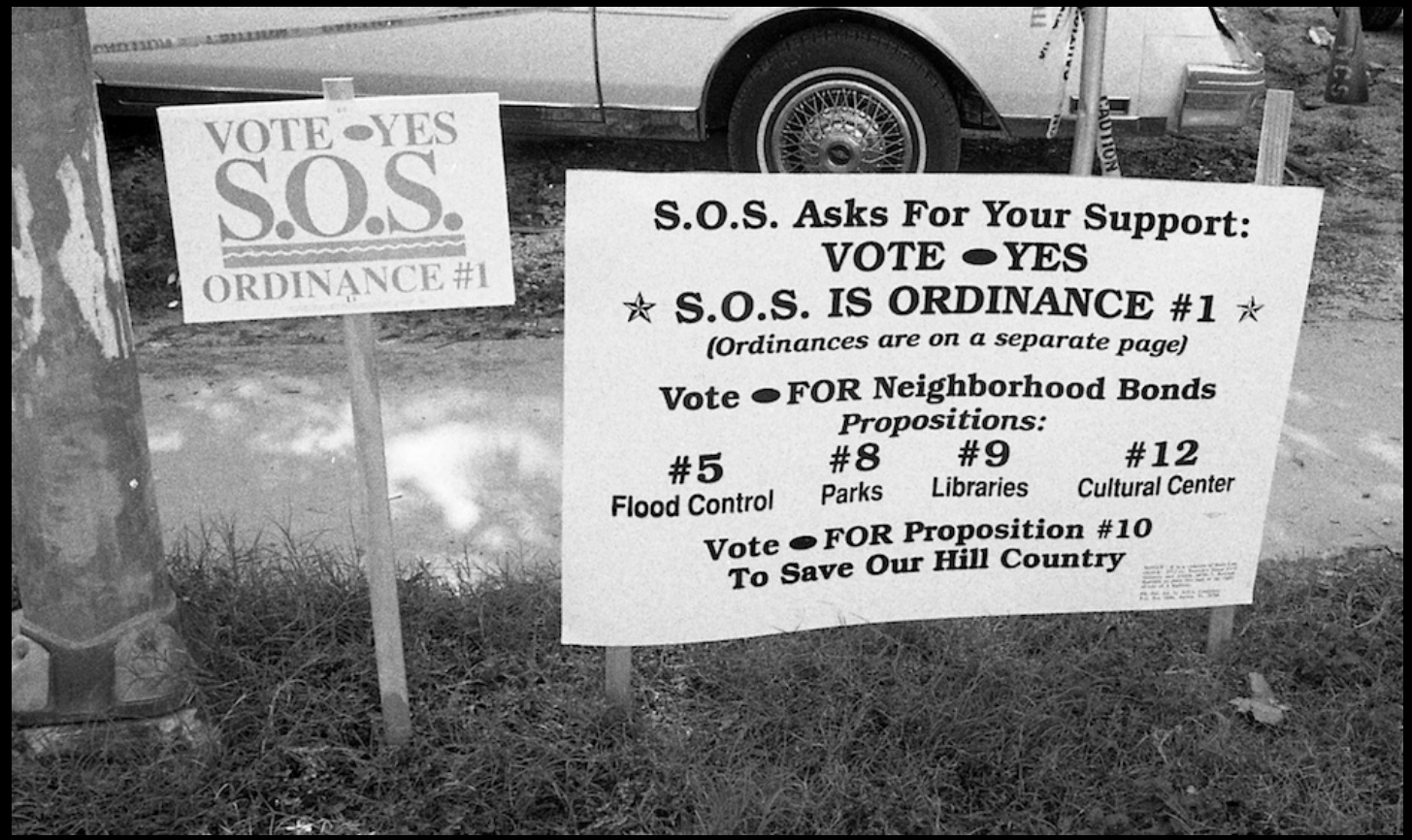
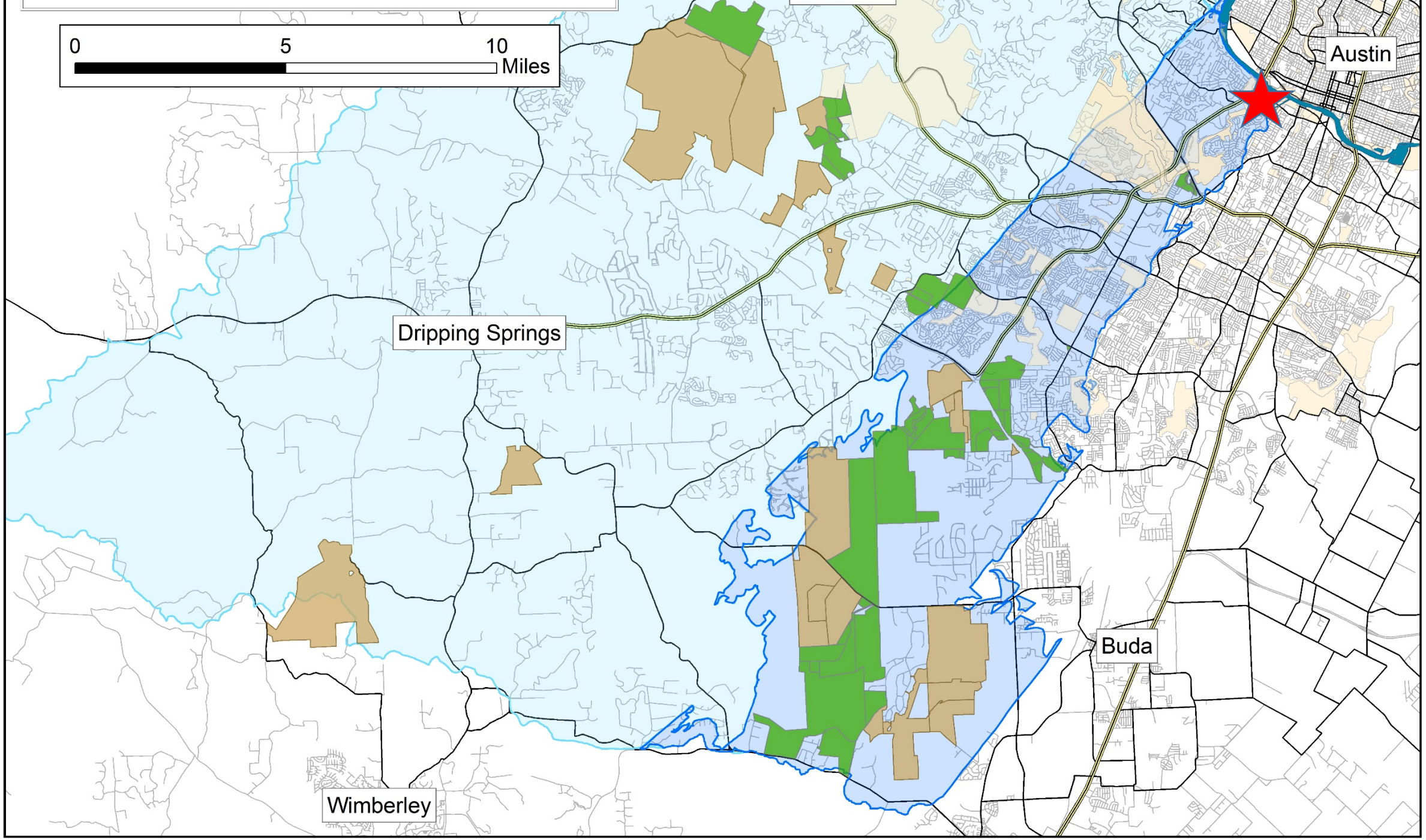
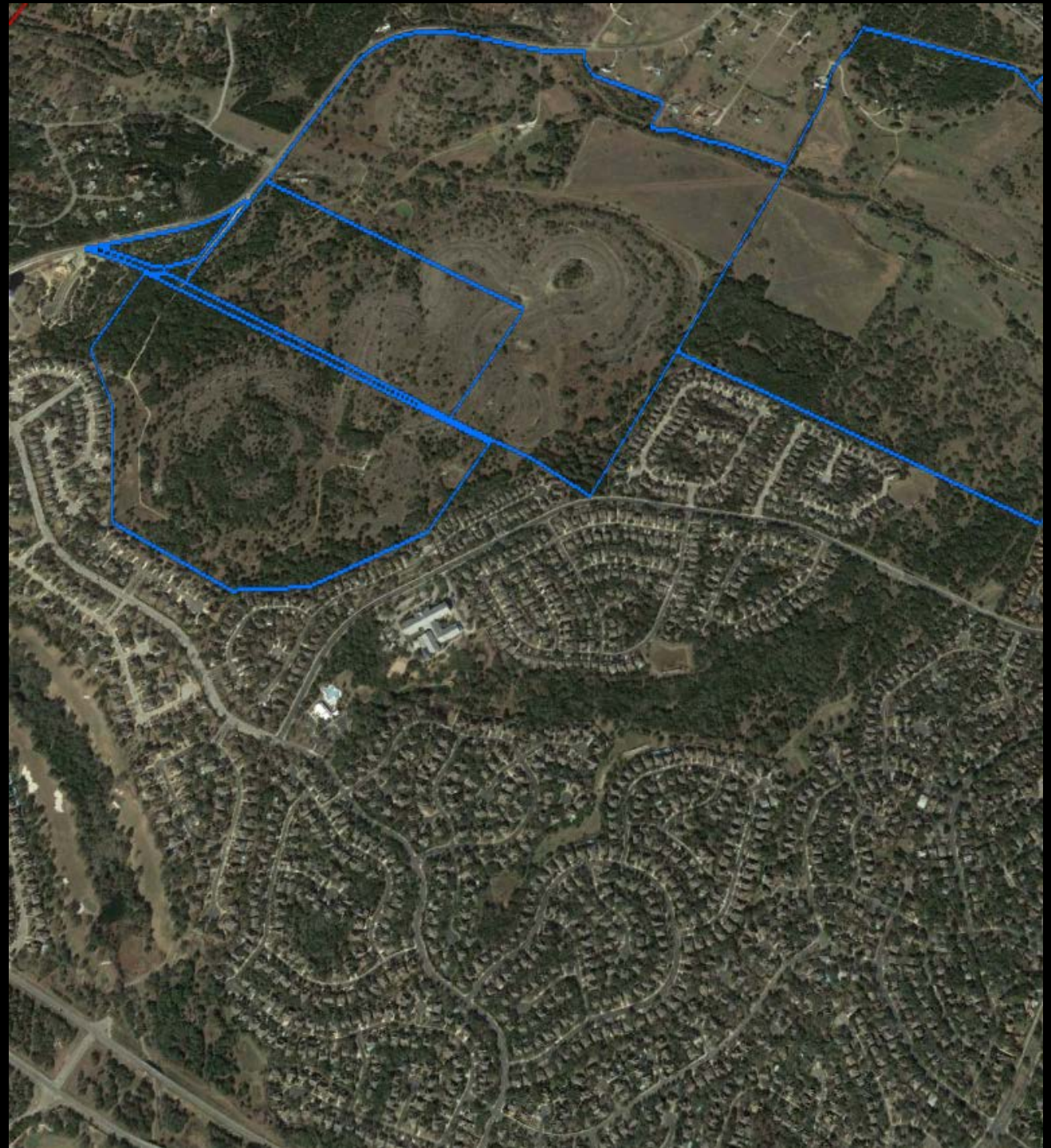
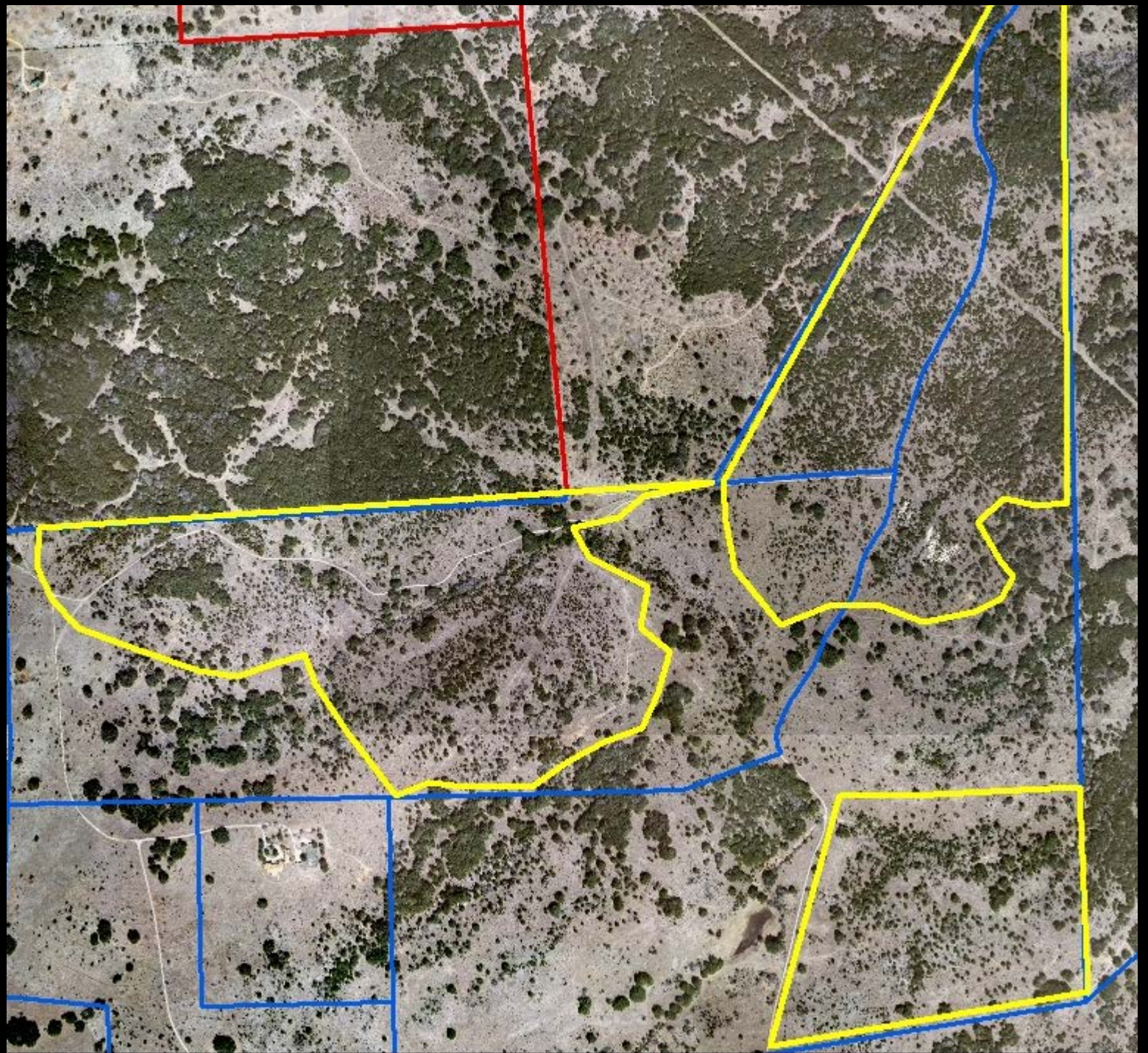
WQPL Program Manager

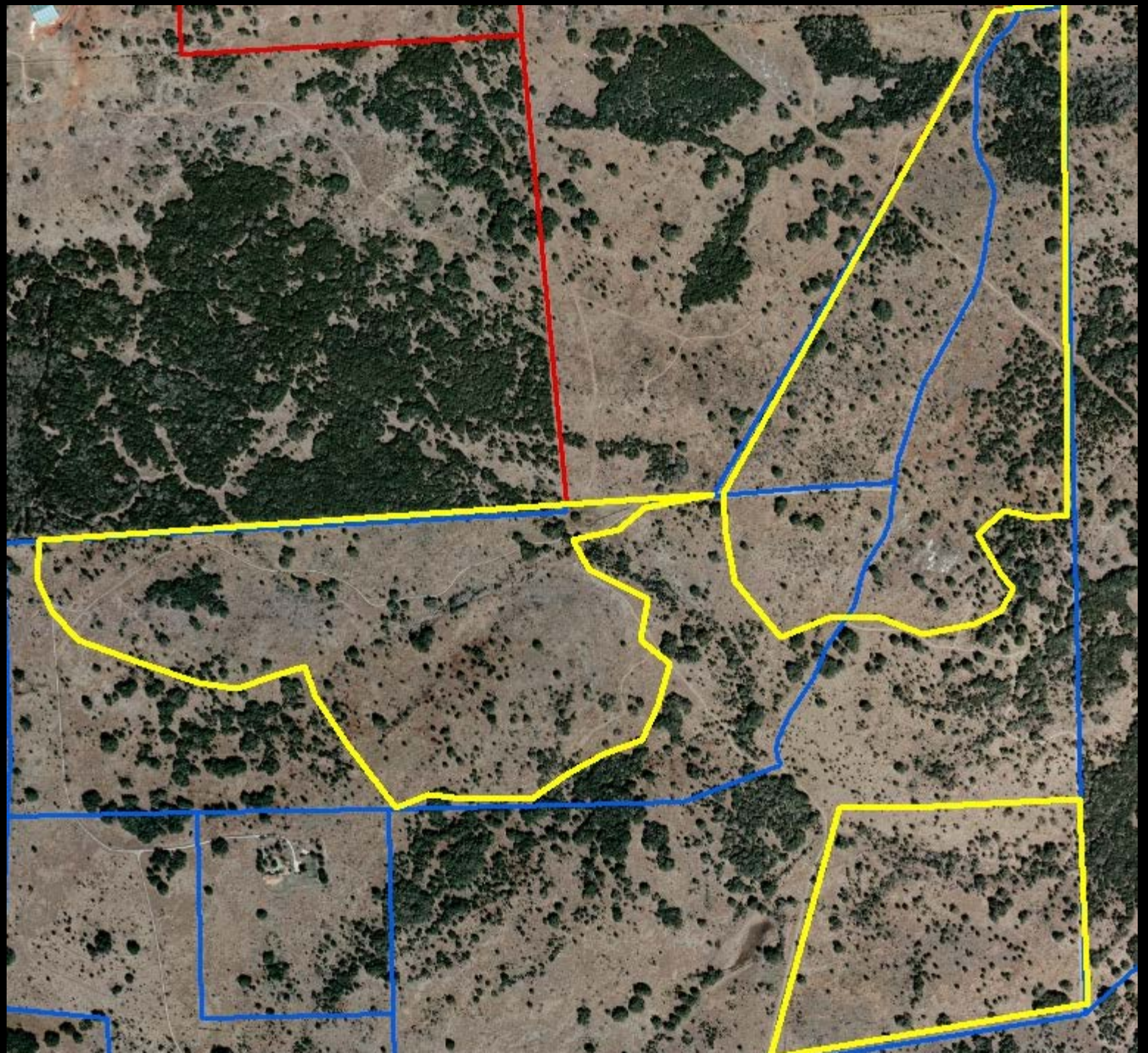

FROM EXECUTIVE PRODUCERS
TERRENCE MALICK AND ROBERT REDFORD
THE UNFORESEEN
DIRECTED BY LAURA DUNN
"A TRANSFORMATIVE VIEWING EXPERIENCE... IT FAR SURPASSES AN INCONVENIENT TRUTH."
Robert Koehler, Variety
OFFICIAL SELECTION
NOMINEE
CINEMA GUILD

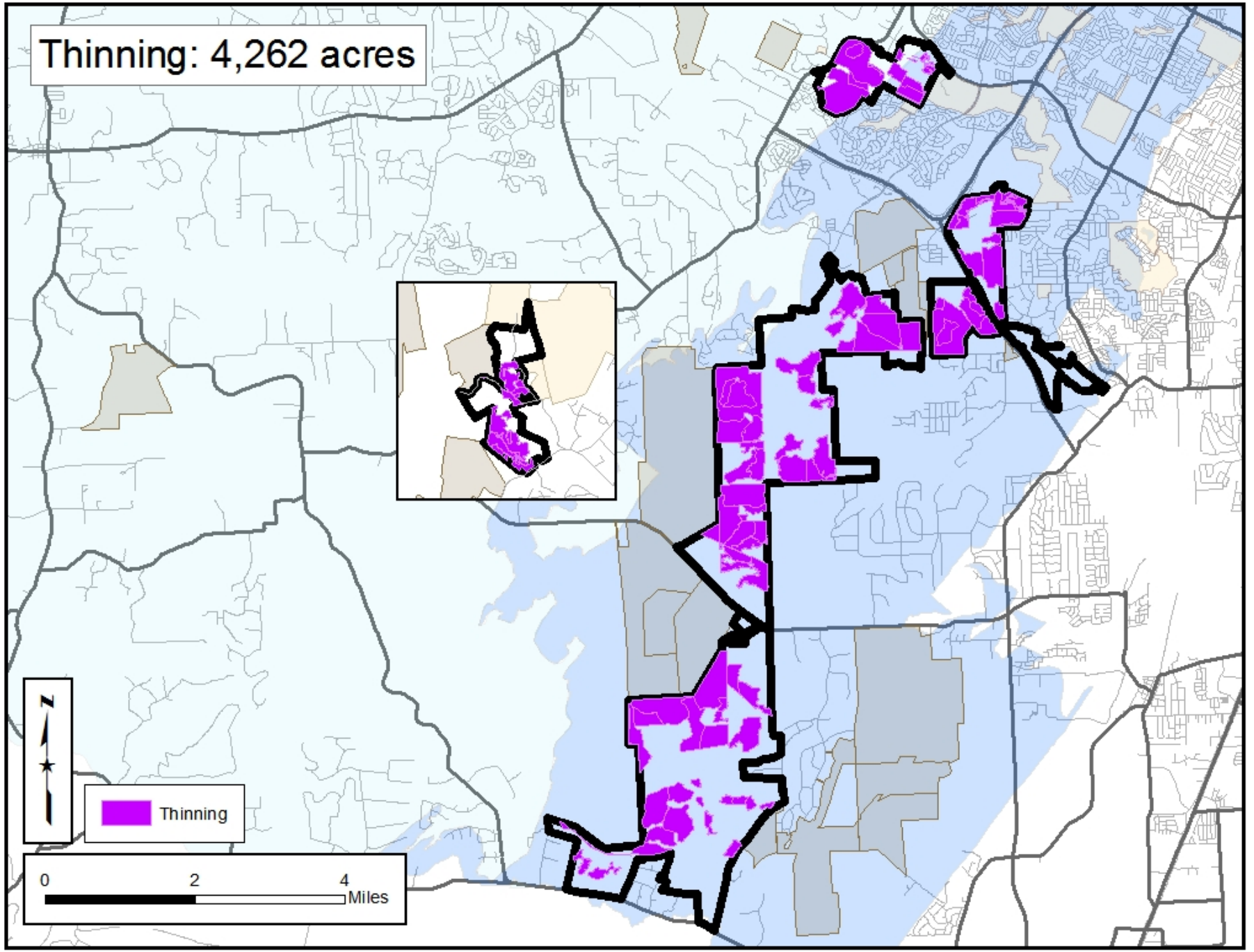

VOTE • YES
S.O.S.
ORDINANCE #1
S.O.S. Asks For Your Support:
VOTE • YES
☆ S.O.S. IS ORDINANCE #1 ☆
(Ordinances are on a separate page)
Vote • FOR Neighborhood Bonds
Propositions:
#5 Flood Control
#8 Parks
#9 Libraries
#12 Cultural Center
Vote • FOR Proposition #10
To Save Our Hill Country

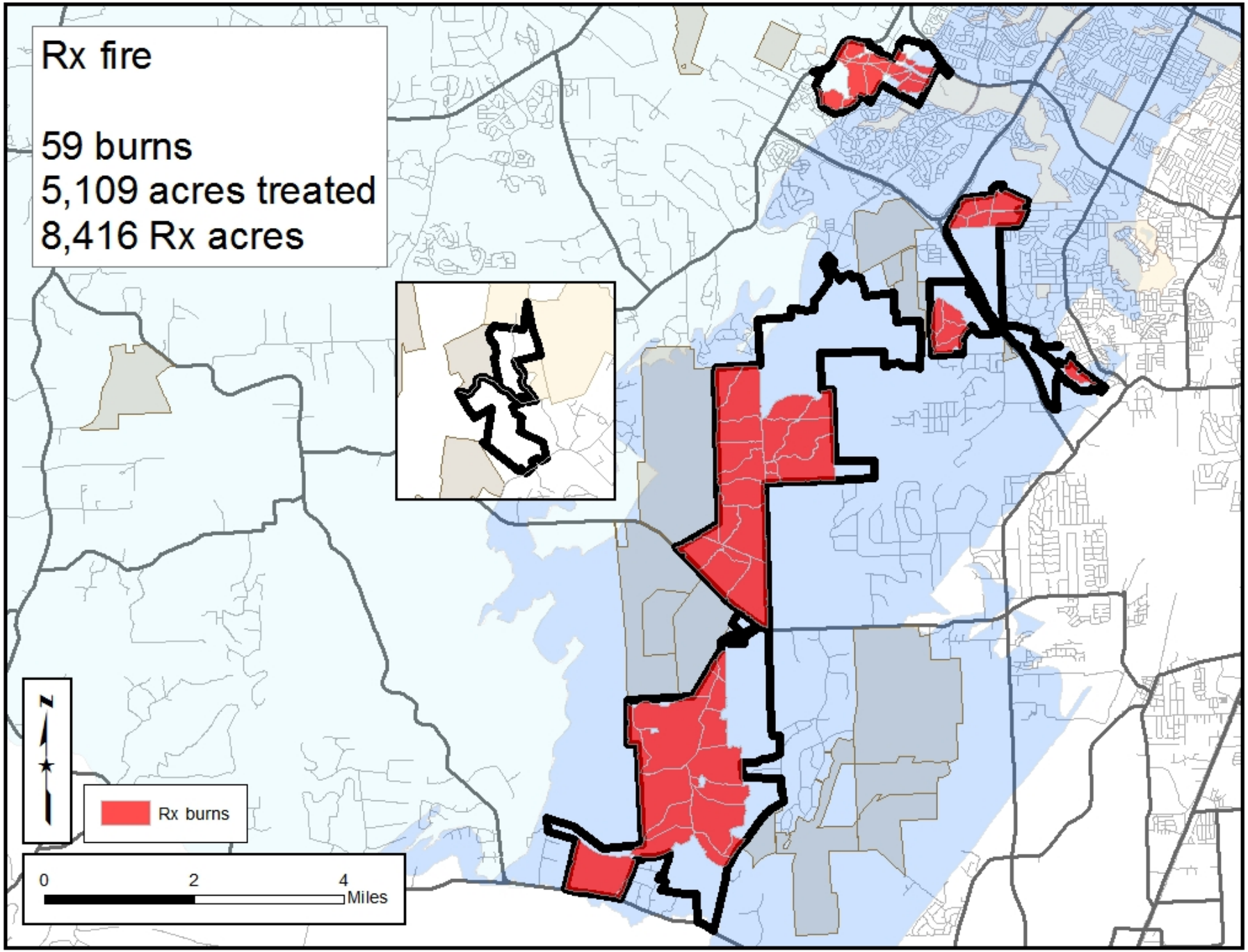

0
5
10
Miles
Austin
Dripping Springs
Buda
Wimberley

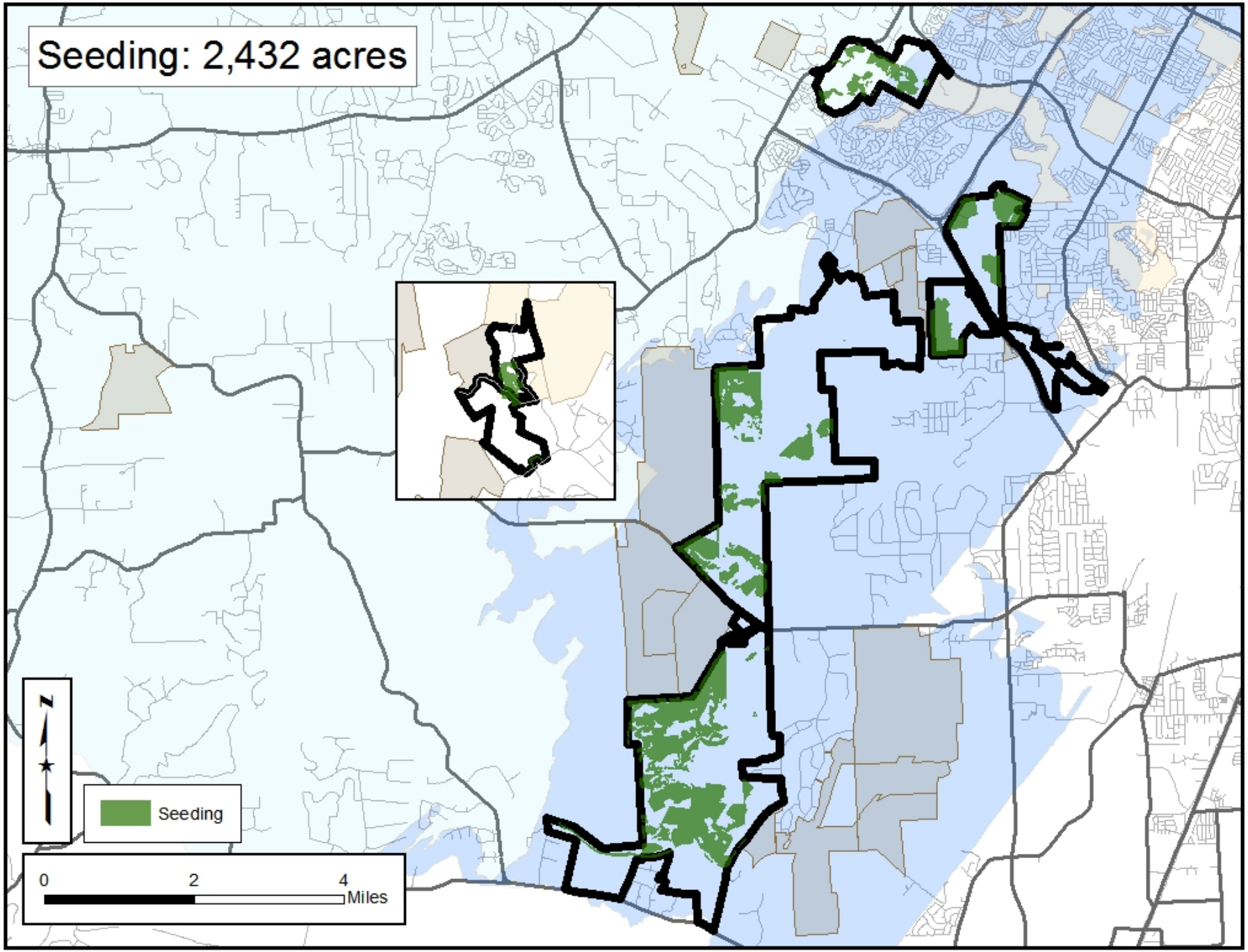


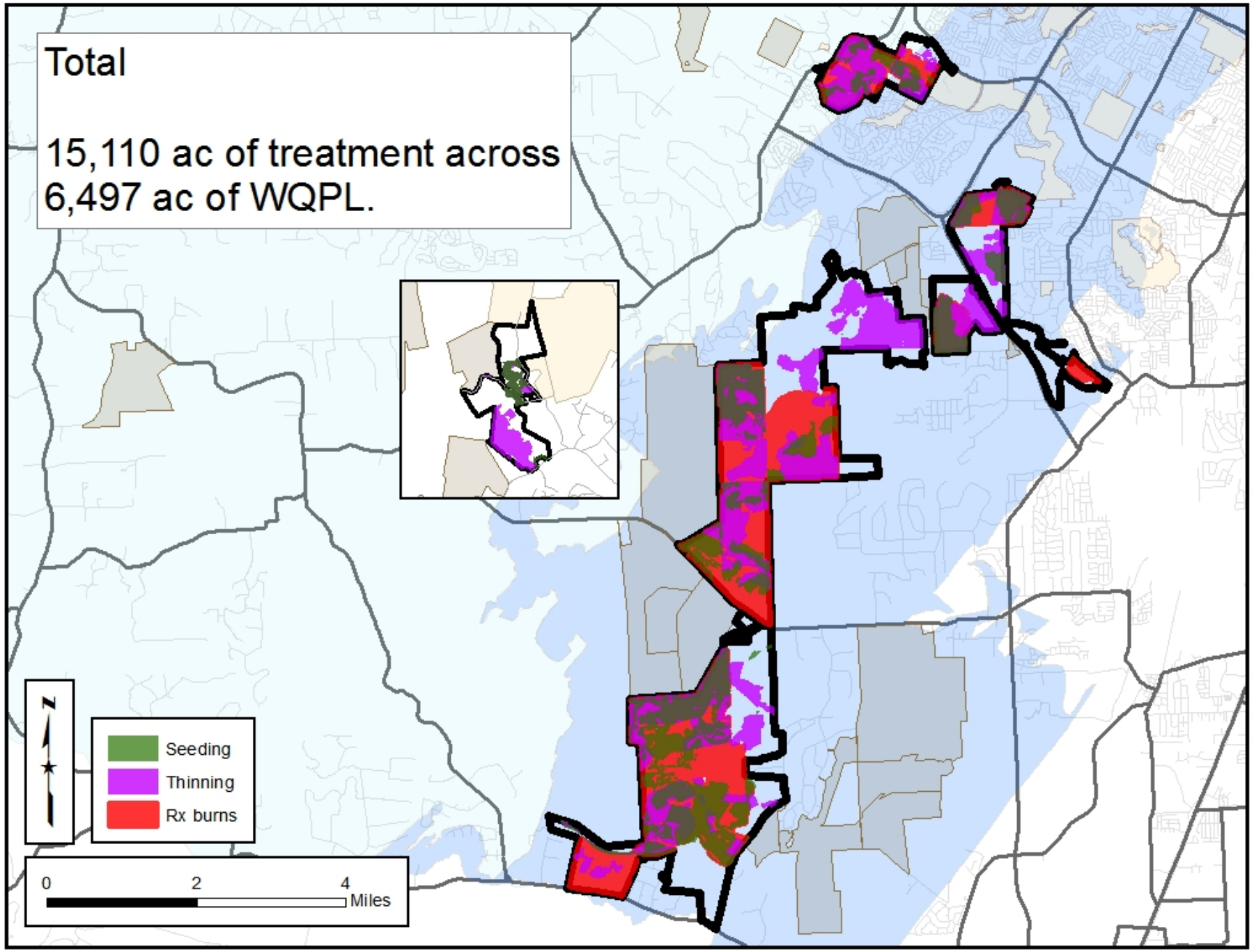





Thinning: 4,262 acres
N
Thinning
0
2
4
Miles


Rx fire
59 burns
5,109 acres treated
8,416 Rx acres
N
Rx burns
0
2
4
Miles


Seeding: 2,432 acres
N
Seeding
0
2
4
Miles


Total
15,110 ac of treatment across 6,497 ac of WQPL.
N
Seeding
Thinning
Rx burns
0
2
4
Miles

What does that restoration equal though?

Water Quality

- Dense vegetation with great diversity means we have something growing whether drought or flood, our two normal conditions.
- Grassy swales /Grass filter strips are common BMPS, we have acres of it
- Slow down water, allow greater infiltration
- Prevent erosion
- Plants, dense roots, soil can help remove pollutants

What does that restoration equal though?

Water Quantity

- Research has demonstrated lower canopy coverage = higher water yield across the planet
- You will not fill reservoirs this way, though.
- Effect is stronger with greater rainfall, lesser with lesser rainfall.
- Soil types demonstrate prairie/savanna ecosystems dominated areas where WQPL is located.
- Can be seen as maintaining the status quo of the preponderance of the past 10,000 years in terms of water yield.

What does that restoration equal though?

Biodiversity

- 448 species of plants found on Onion Creek Management Unit
  - About 3,500 acres, located in Hays County
- Hays County has ~435,000 acres
  - Onion Creek Unit is 0.7% of the Hays County acreage
- Total species in Hays County = 916
- So on 0.7% of land, we have 49% of the plant biodiversity!
- Good for quail, good for monarchs, good for most living things,
  - people included.

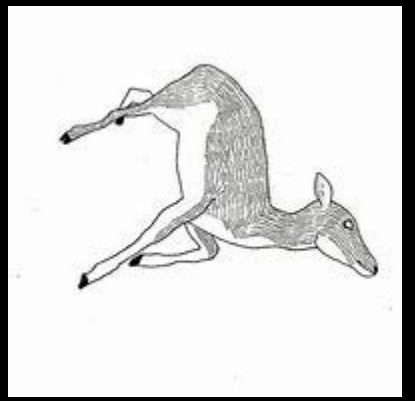
+ Carbon Sequestration

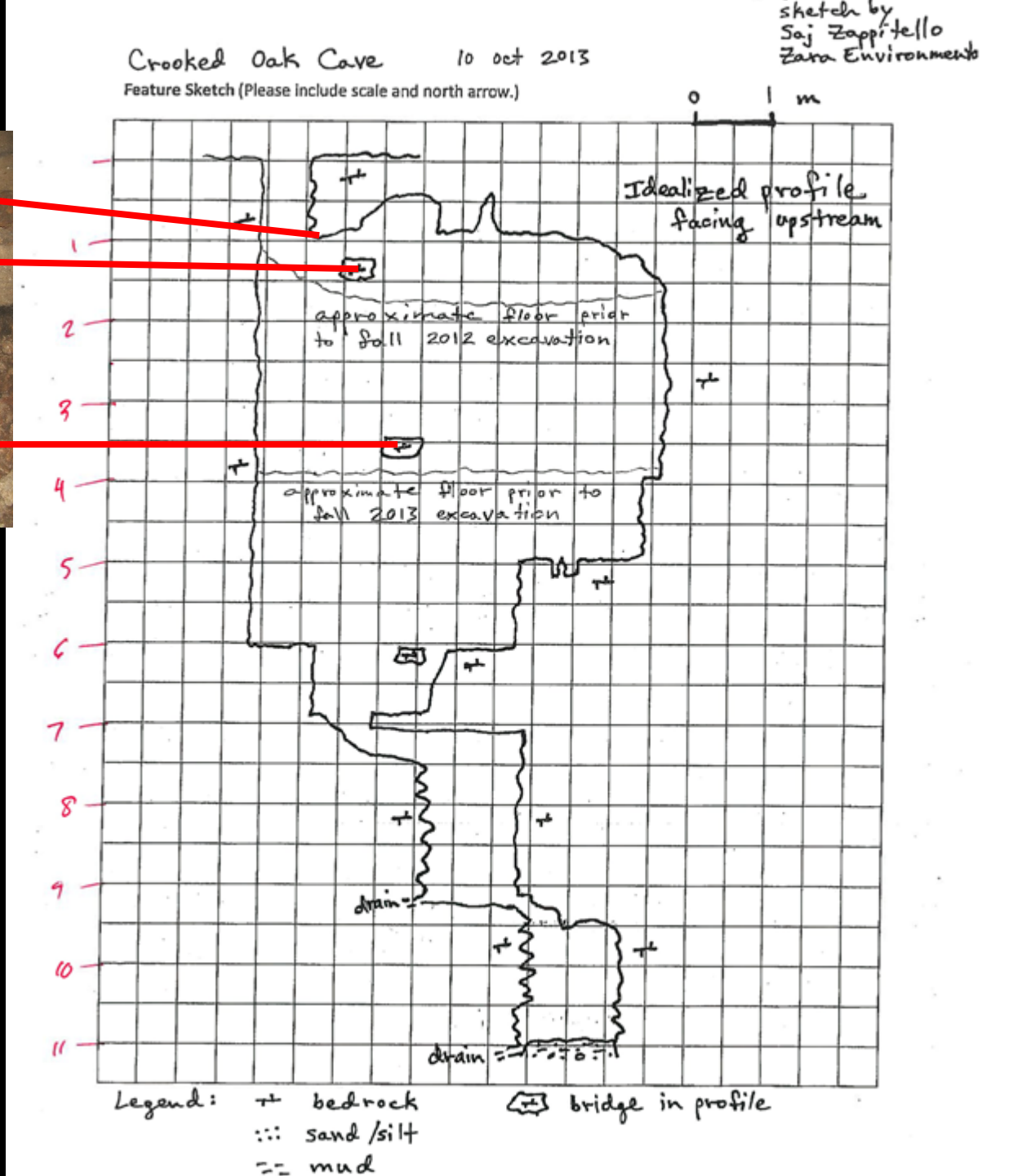
+ Open Space

+ Habitat for things that might become endangered

+? The Unknown : + "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." John Muir

Over time various things get sucked into or fall into such features





How much removed?

53 cubic yards

About 4 dump trucks full

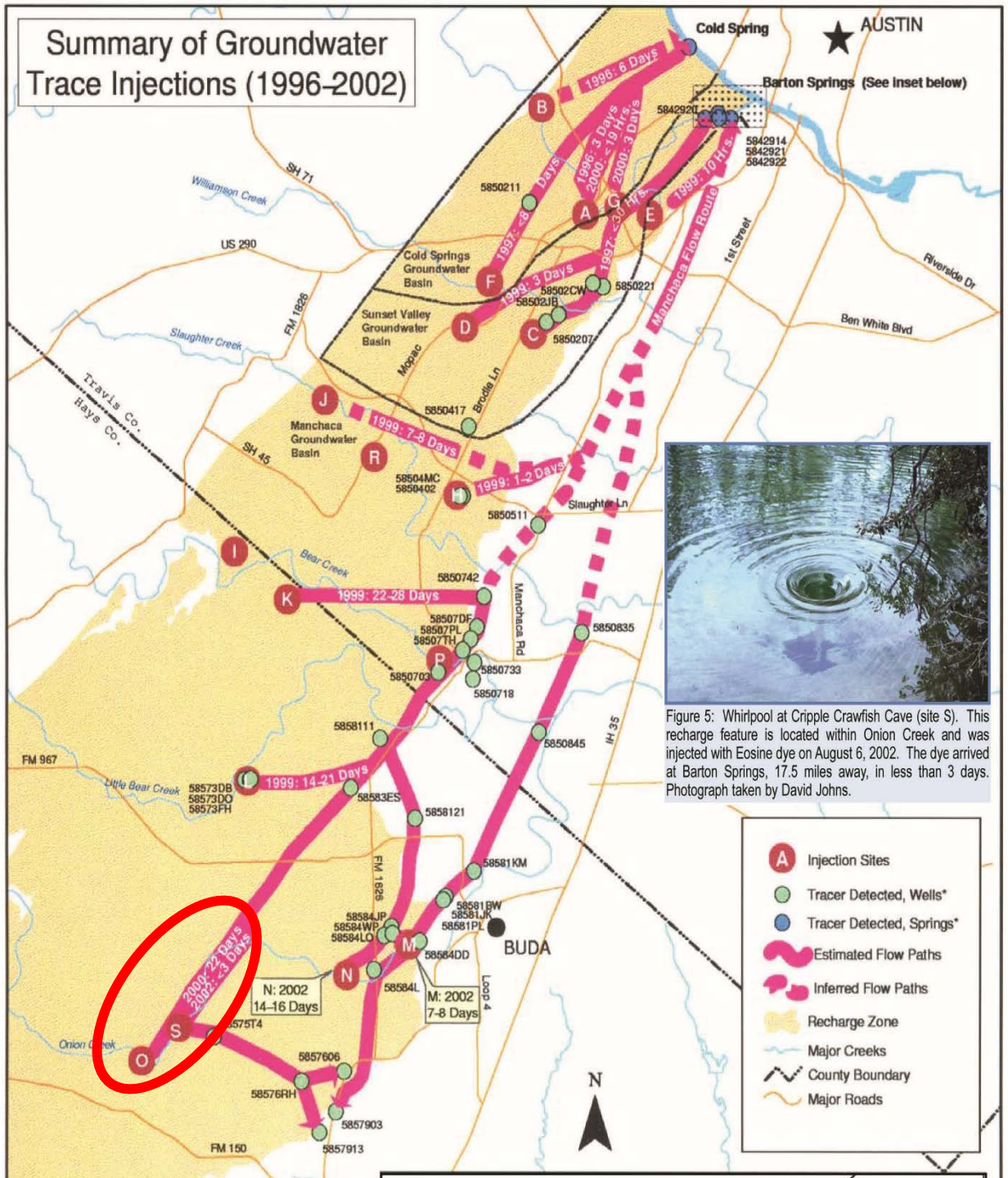
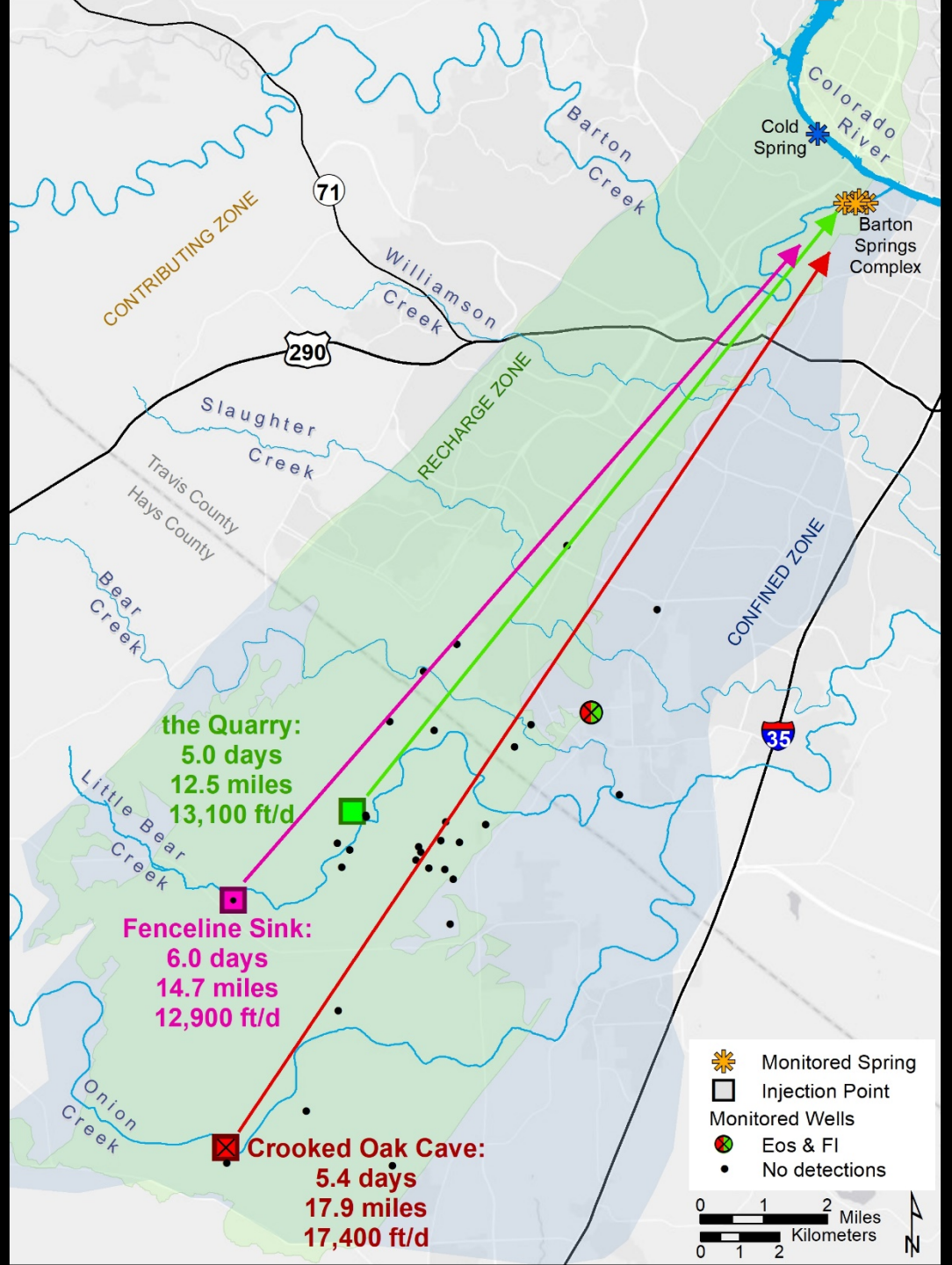
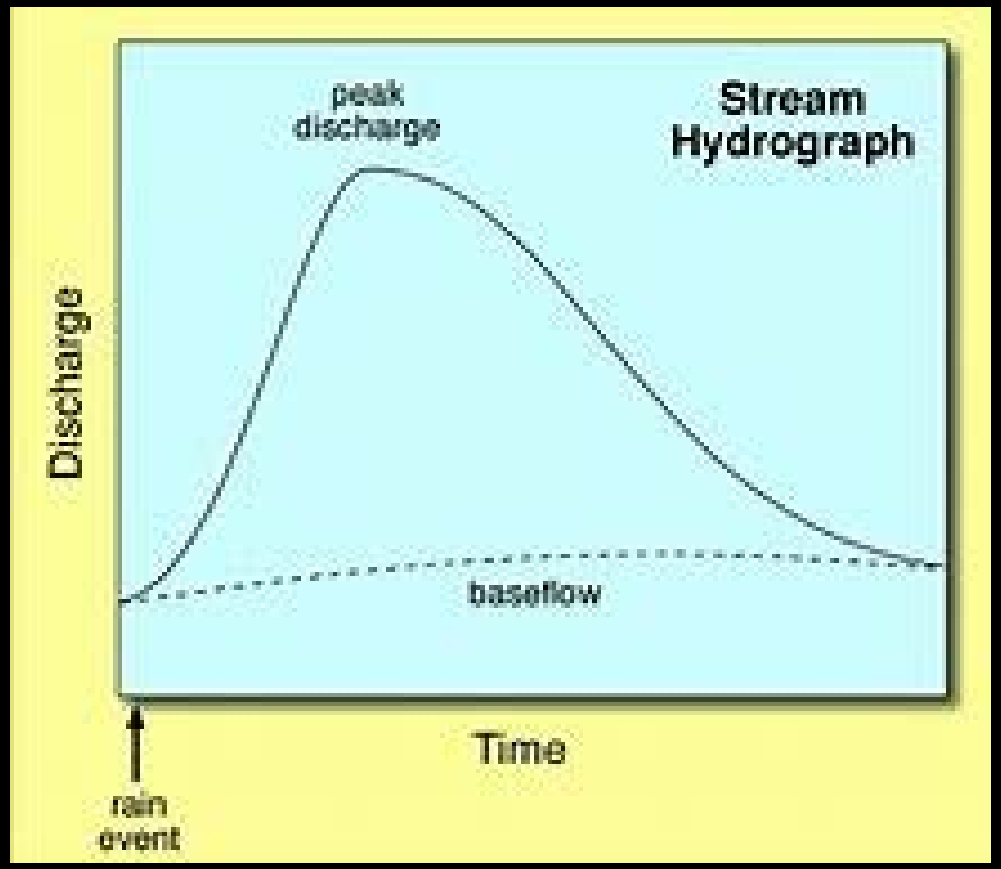
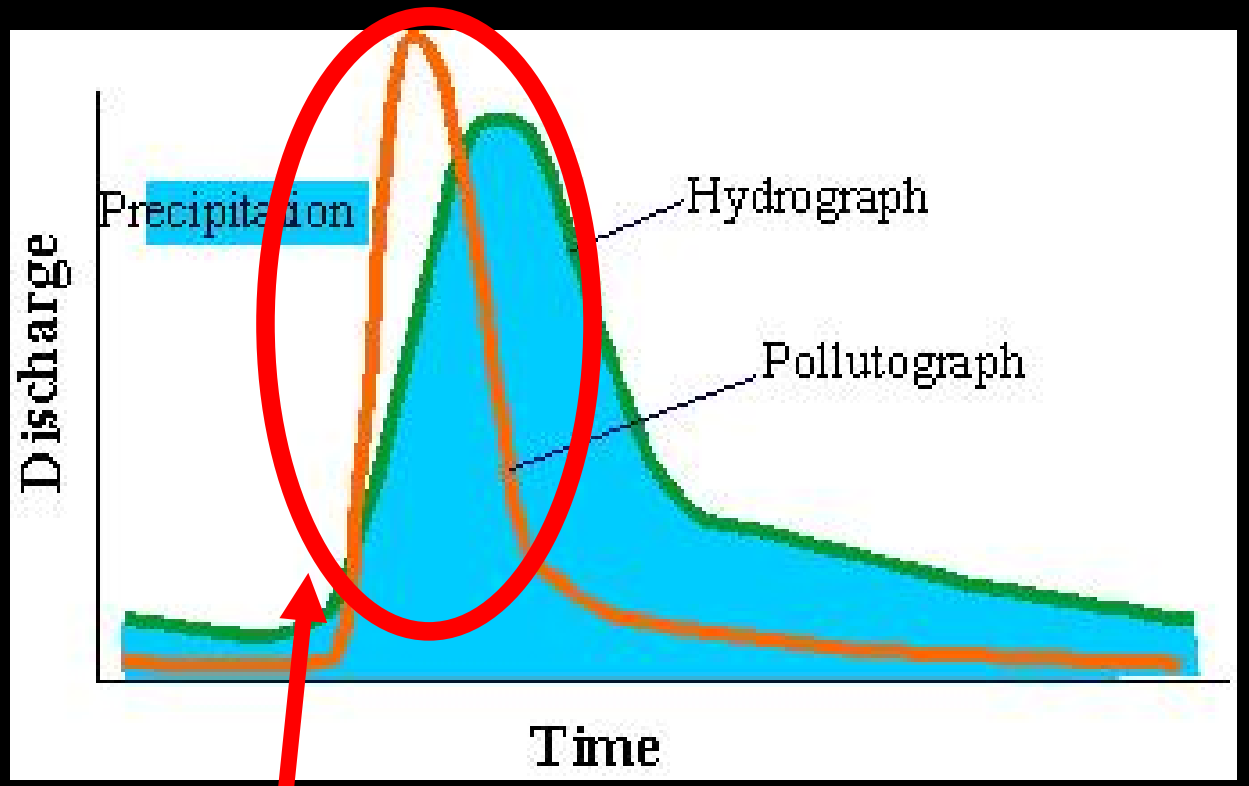


Figure 5: Whirlpool at Cripple Crawfish Cave (site S). This recharge feature is located within Onion Creek and was injected with Eosine dye on August 6, 2002. The dye arrived at Barton Springs, 17.5 miles away, in less than 3 days. Photograph taken by David Johns.


Colorado River
Cold Spring
Barton Creek
Barton Springs Complex
71
CONTRIBUTING ZONE
Williamson Creek
290
Slaughter Creek
RECHARGE ZONE
Travis County
Hays County
Bear Creek
CONFINED ZONE
35
the Quarry:
5.0 days
12.5 miles
13,100 ft/d
Little Bear Creek
Fenceline Sink:
6.0 days
14.7 miles
12,900 ft/d
Onion Creek
Crooked Oak Cave:
5.4 days
17.9 miles
17,400 ft/d
Monitored Spring
Injection Point
Monitored Wells
Eos & Fl
No detections
0 1 2
Miles
Kilometers
0 1 2
N

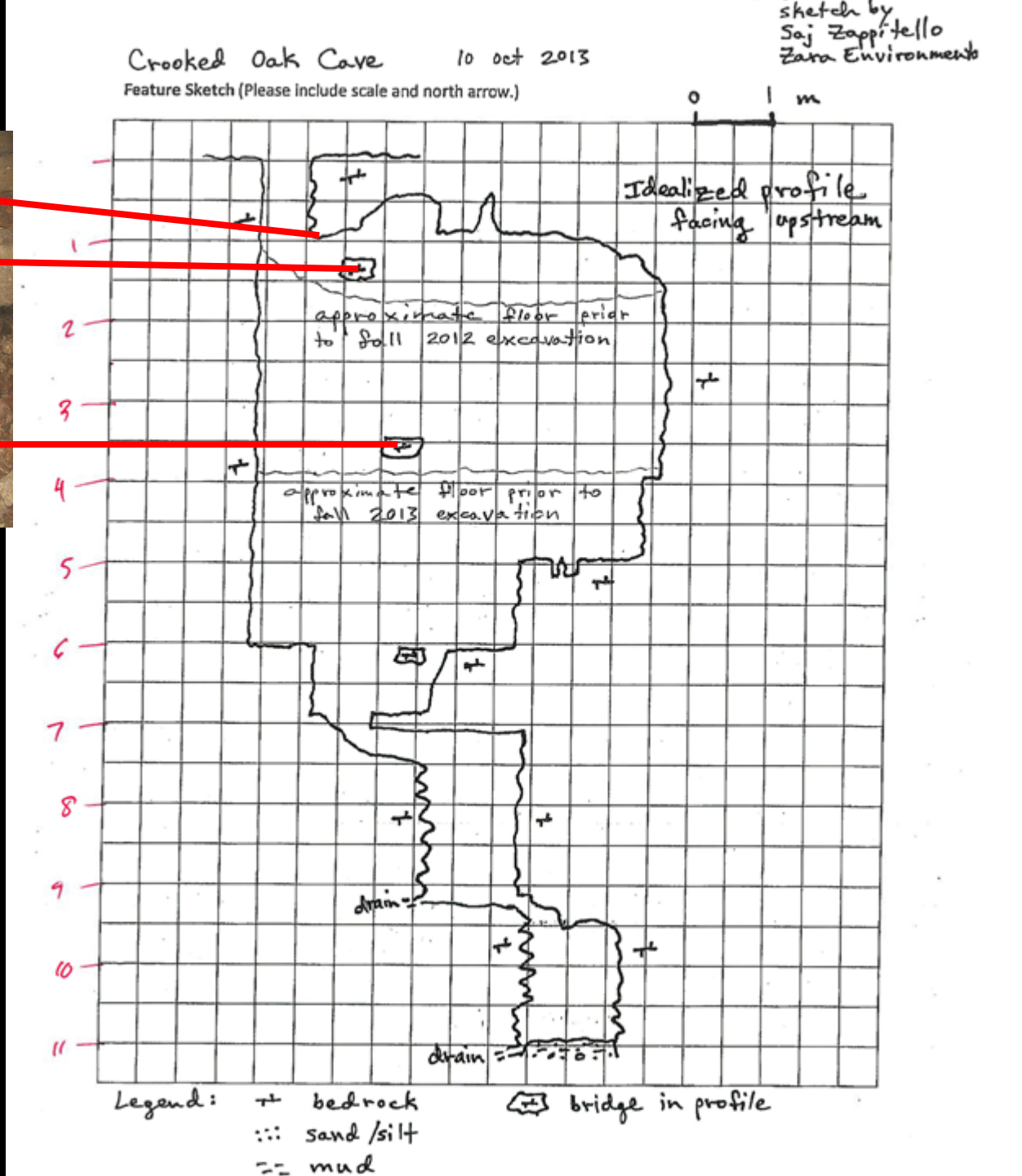




Keep this water out!


gettyimages
Jeffrey Coolidge
98222130

But what if you opened this under water?



Measurements from BSEACD of results of work

Above Caves

Discharge Measurement Summary Date Generated: Mon Sep 26 2016

File Information
File Name OCUPOAK.WAD
Start Date and Time 2016/09/02 12:27:51

Site Details
Site Name
Operator(s) BH

System Information
Sensor Type FlowTracker
Serial # P2247
CPU Firmware Version 3.9
Software Ver 2.20

Units (English Units)
Distance ft
Velocity ft/s
Area ft^2
Discharge cfs

Summary
Averaging Int. 40 # Stations 20
Start Edge LEW Total Width 70.000
Mean SNR 21.8 dB Total Area 141.599
Mean Temp 82.21 °F Mean Depth 2.023
Disch. Equation Mid-Section Mean Velocity 0.3085

Total Discharge 43.6885

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	5.1%
Velocity	0.9%	7.0%
Width	0.2%	0.2%
Method	1.3%	-
# Stations	2.5%	-
Overall	**3.1%**	**8.7%**

Below Caves

Discharge Measurement Summary
Date Generated: Mon Sep 26 2016

File Information
File Name ONBLCRO.WAD
Start Date and Time 2016/09/02 13:30:04

Site Details
Site Name
Operator(s) BH

System Information
Sensor Type FlowTracker
Serial # P2247
CPU Firmware Version 3.9
Software Ver 2.20

Units (English Units)
Distance ft
Velocity ft/s
Area ft^2
Discharge cfs

Summary
Averaging Int. 40 # Stations 18
Start Edge LEW Total Width 34.000
Mean SNR 19.6 dB Total Area 37.400
Mean Temp 83.35 °F Mean Depth 1.100
Disch. Equation Mid-Section Mean Velocity 0.7171

Total Discharge 26.8196

Discharge Uncertainty

Category	ISO	Stats
Accuracy	1.0%	1.0%
Depth	0.2%	3.7%
Velocity	0.6%	3.2%
Width	0.1%	0.1%
Method	1.8%	-
# Stations	2.8%	-
Overall	**3.5%**	**5.0%**

43.6885
-26.8196

= **16.8689**

Many thanks to Brian Hunt from BSEACD for the measurements and analysis!

Math of 16.87 cfs over time---

16.87(cfs) X 7.481 (gal/s)= 126.2 gal/s

126.2 gal/s X 60 (sec/min)= 7,572.2 gal/min

7,572 gal/m X 60 (min/hour)= 454,336 gal/hour

454,336 gal/hr x 24 (hrs)= 10,904,064 gal/day

10,904,064 gal/day x 365 days= 3,979,983,360 gal/yr

4 billion gallons per year (12,220 ac ft/yr)

- 20 years ago the will of the people made this program happen
- Still one of the best kept secrets in Austin
- We have kept systems functioning based on 1998 demographics, but greater growth = greater threats.

20th Anniversary Celebration of the Water Quality Protection Lands

Saturday, October 6, 2018
10:00 am to 3:00 pm
Driftwood, TX

RSVP - aWILDidea.Eventbrite.com

Tacos 

Guided restoration ecology hikes

Live music featuring Harvest Thieves

Electronic crawl-through cave simulator ?!

The premiere of *A Wild Idea*, a new documentary about the Water Quality Protection Lands