Thompsons Creek

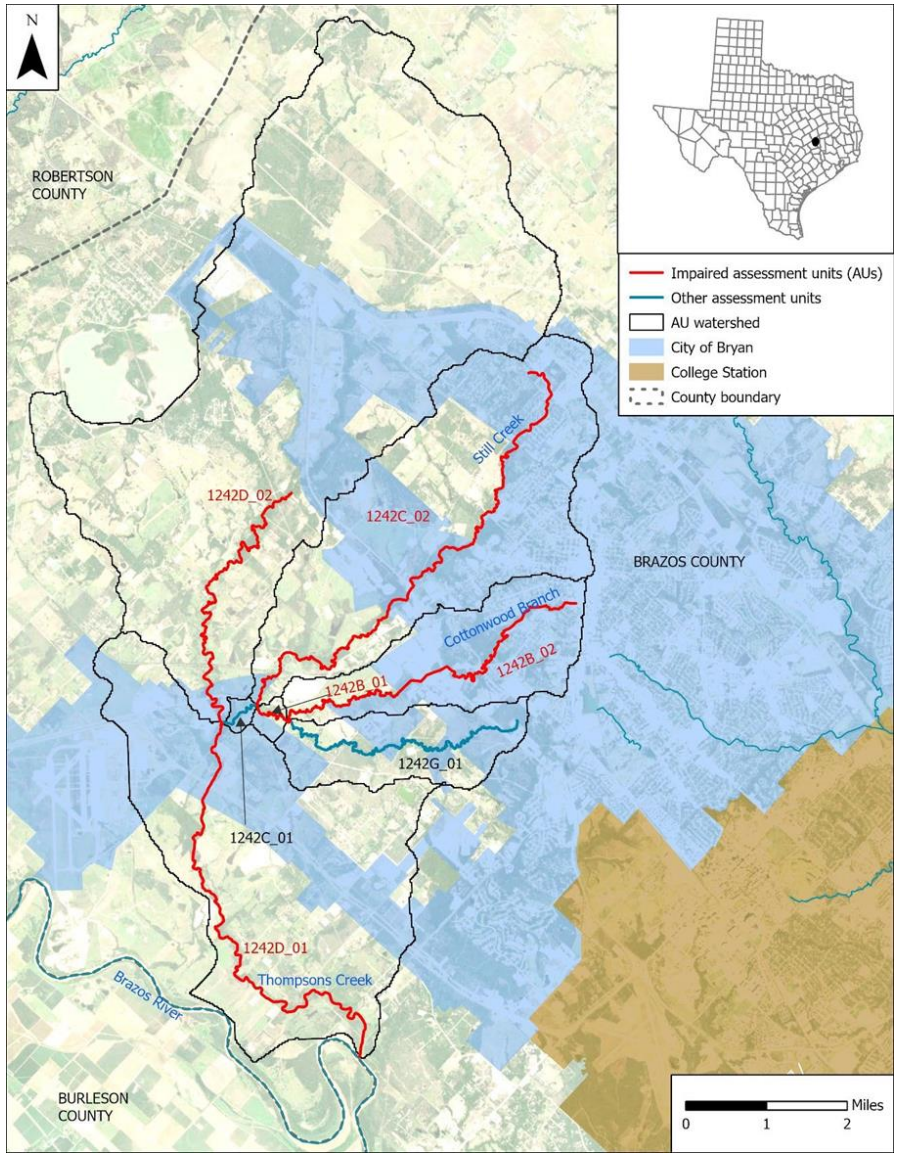
Watershed Protection Plan Development

Photo by Cameron Castilaw
Feb 14th, 2024

Funding for developing the WPP for the Thompsons Creek watershed is provided in part by the U.S Environmental Protection Agency through a Clean Water Act Section 319(h) grant to the Texas Commission on Environmental Quality.

Meeting Agenda

- Overview of Previous Meeting
- Chapters 3 & 4
- Q&A and discussion
    - Next steps



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Previous Meeting on July 31, 2024

- Chapter 1 – Watershed Management
  - Watershed Approach
  - Watershed Protection Plan
  - Adaptive Management
  - Education and Outreach
- Chapter 2 – Watershed Characterization
  - List of Impairments
  - Land Use, Land Cover, Topography, Soils
  - Population, Ecoregions, Groundwater

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Chapter 3: Water Quality

Photo by Cameron Castilaw
Feb 14th, 2024

Monitoring Stations

Assessment unit	SWQM station	Geometric mean (cfu/100 mL)
1242B_01	17598	1408
1242B_02	17597	157
1242C_02	16882	375
1242D_01	16396	1042
1242D_02	16397	357

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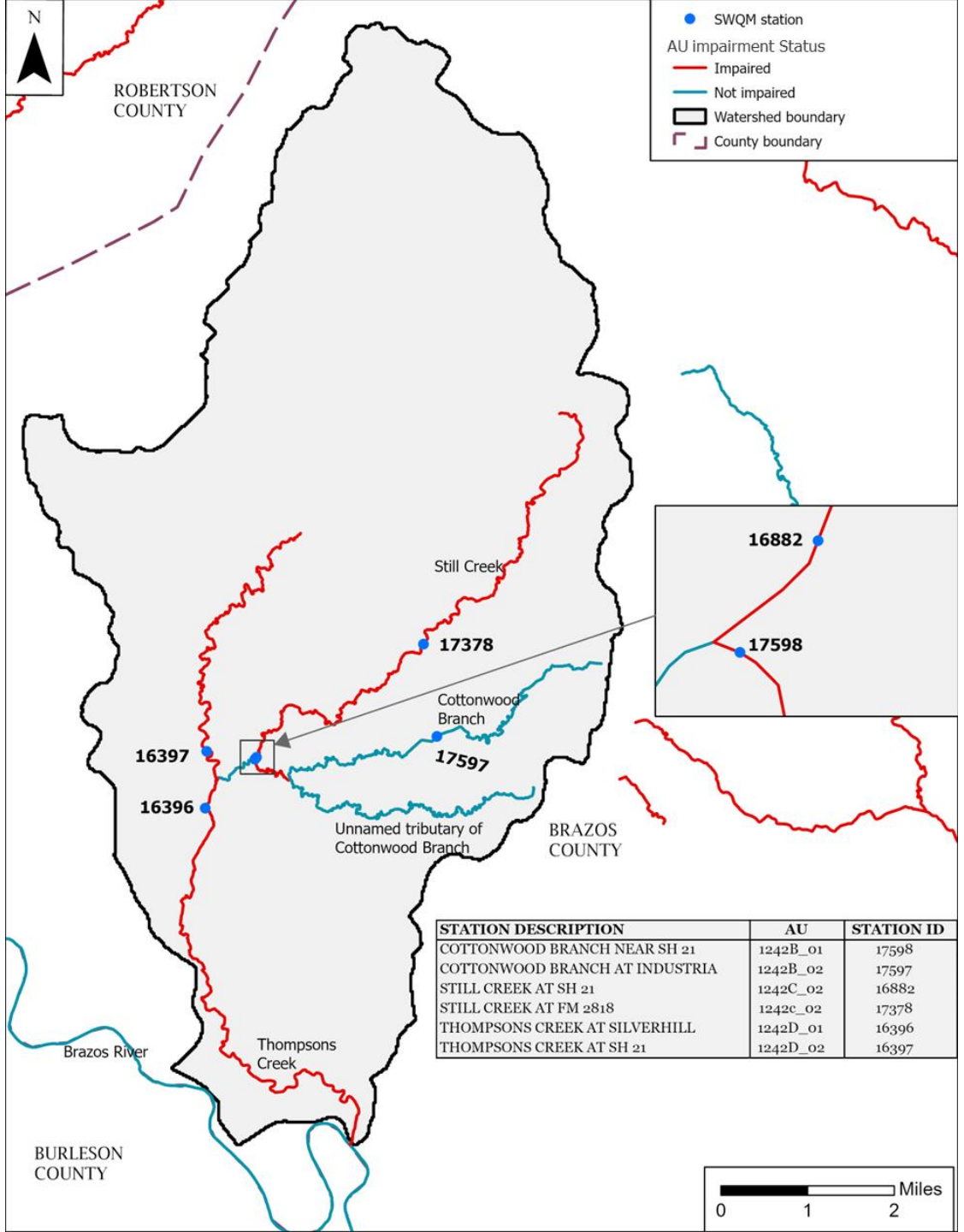
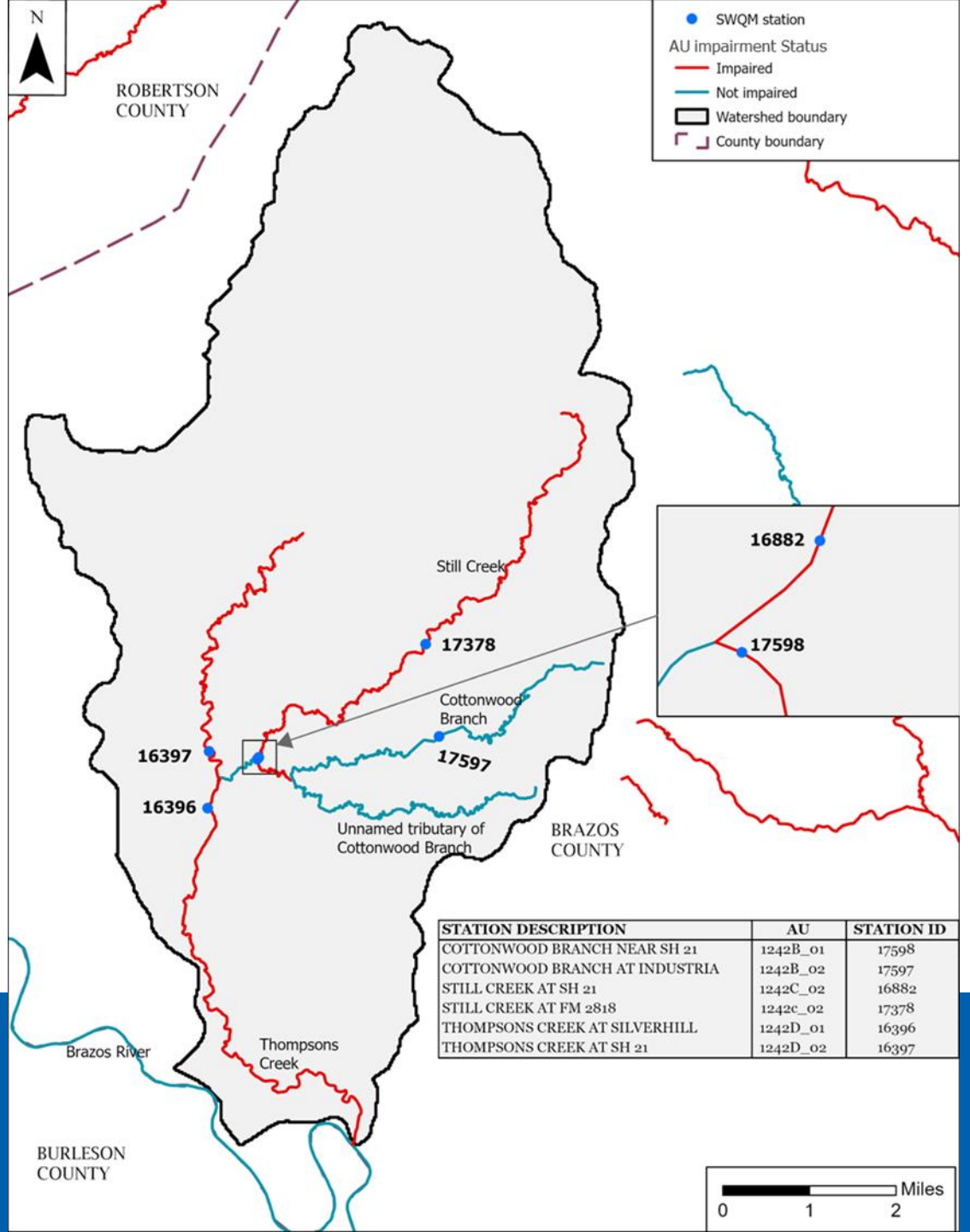


STATION DESCRIPTION	AU	STATION ID
COTTONWOOD BRANCH NEAR SH 21	1242B_01	17598
COTTONWOOD BRANCH AT INDUSTRIA	1242B_02	17597
STILL CREEK AT SH 21	1242C_02	16882
STILL CREEK AT FM 2818	1242c_02	17378
THOMPSONS CREEK AT SILVERHILL	1242D_01	16396
THOMPSONS CREEK AT SH 21	1242D_02	16397

Recreational Uses

Water body	Use Category	Geometric Mean Colonies/100 mL Criterion	Indicator Bacteria
Cottonwood Branch	Secondary contact recreation 1	630	E. coli
Still Creek	Primary contact recreation 1	126	E. coli
Thompsons Creek	Primary contact recreation 1	126	E. coli

PCR1- activities presumed to involve a significant risk of ingestion
SCR1- activities that commonly occur but have limited body contact incidental to shoreline activity



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Fecal Indicator Bacteria

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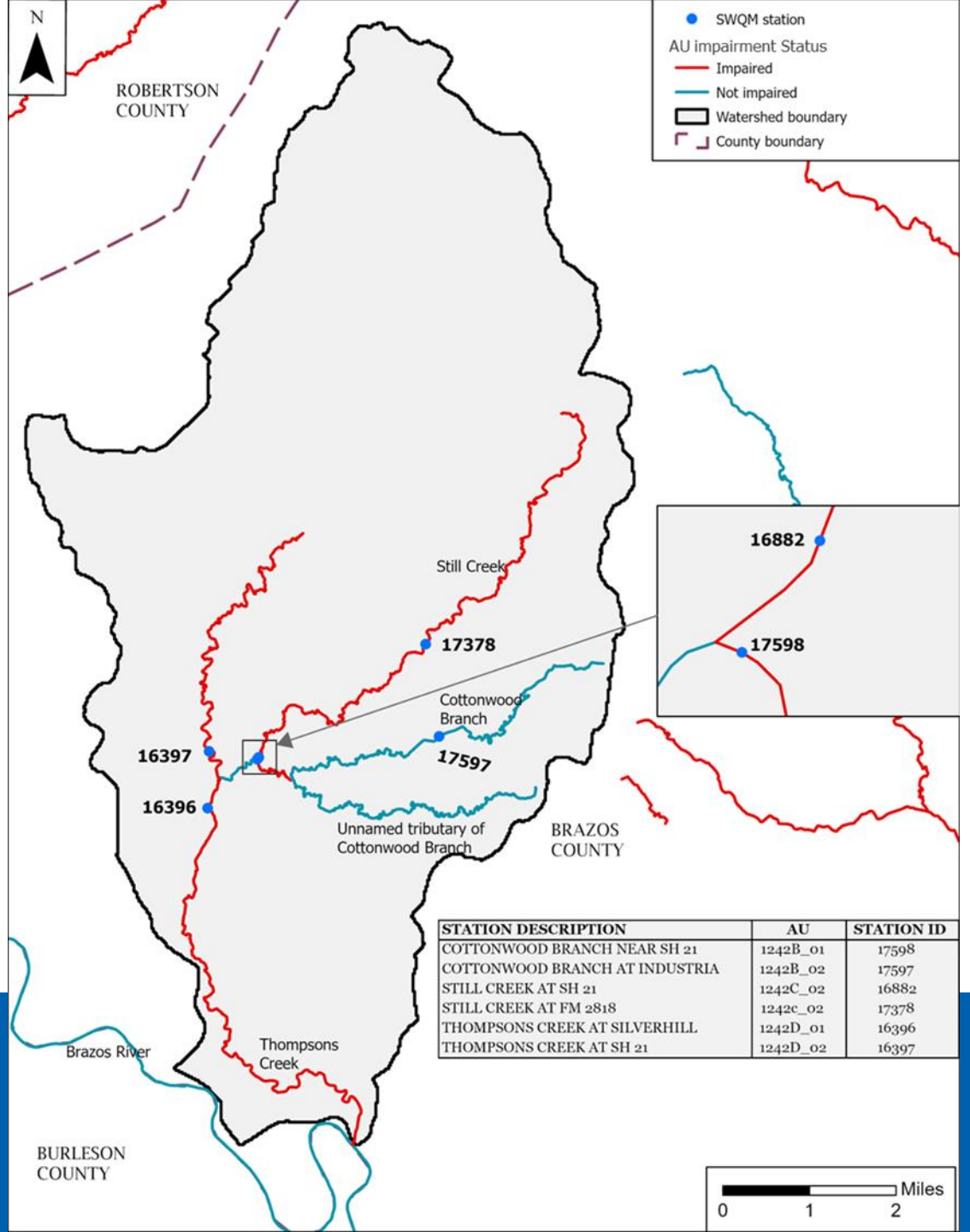
Aquatic Life Uses

Water body	Use Category	Dissolved Oxygen Criterion - Mean (mg/L)
Cottonwood Branch	Intermediate	4.0
Still Creek	High	5.0
Thompsons Creek (AU 1242D_01)	High	5.0
Thompsons Creek (AU 1242D_02)	Intermediate	4.0
Unnamed tributary of Cottonwood Branch	Intermediate	4.0



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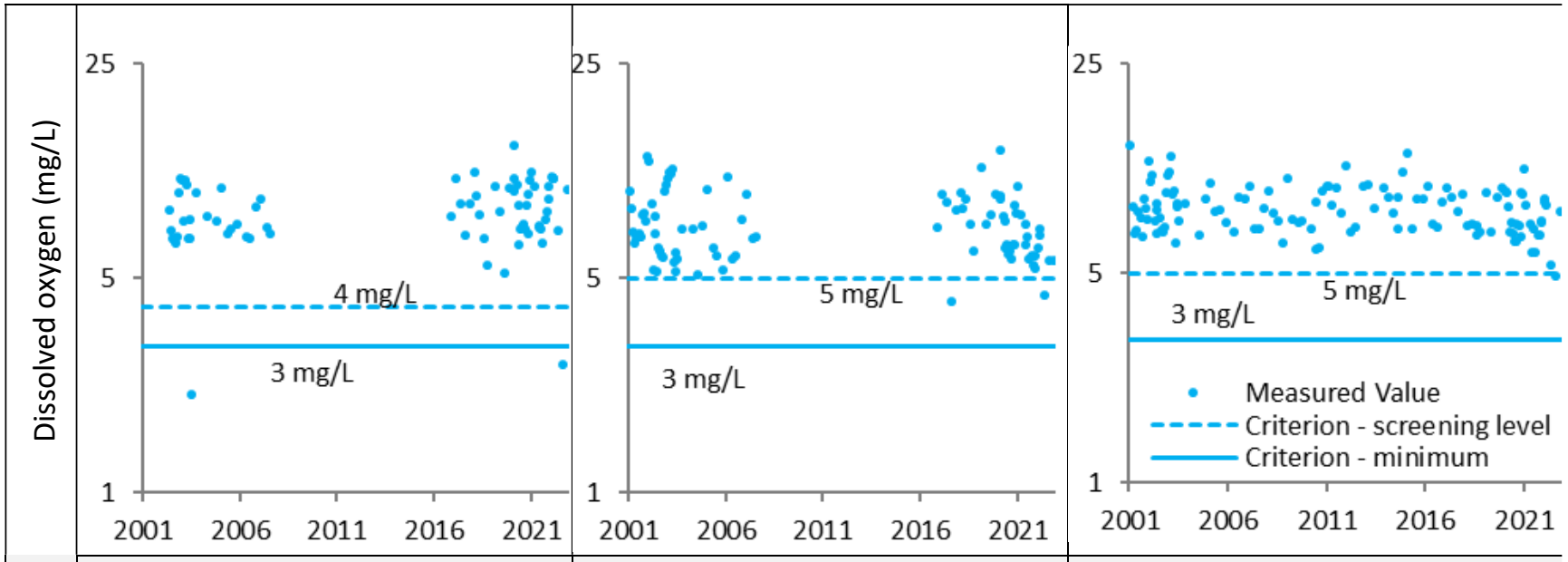
Dissolved Oxygen



Cottonwood Branch at station 17598

Still Creek at station 16882

Thompsons Creek at station 16396

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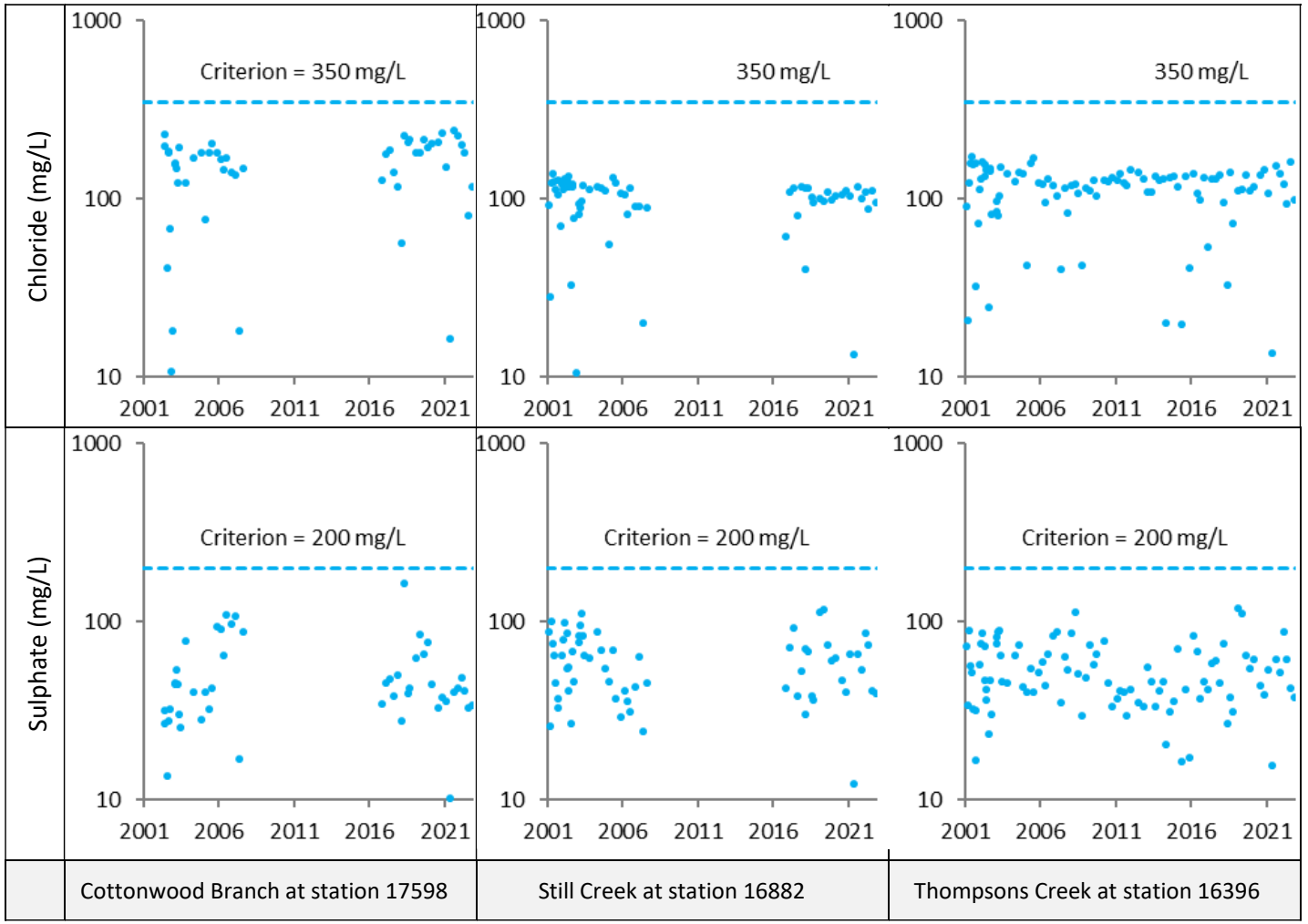
Nutrient


Nitrate Nitrogen (mg/L)
Total phosphorous (mg/L)
100
10
1
0.1
2001
2006
2011
2016
2021
Criterion = 1.95 mg/L
Criterion = 0.69 mg/L
Cottonwood Branch at station 17598
Still Creek at station 16882
Thompsons Creek at station 16396

Chloride and Sulphate



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Chapter 4: Potential Sources

Photo by Cameron Castilaw
Feb 14th, 2024

Potential Sources

- **Point sources – typically require permits**
  - Wastewater treatment facilities
  - Sanitary sewage overflows
  - Construction sites
  - Concrete production

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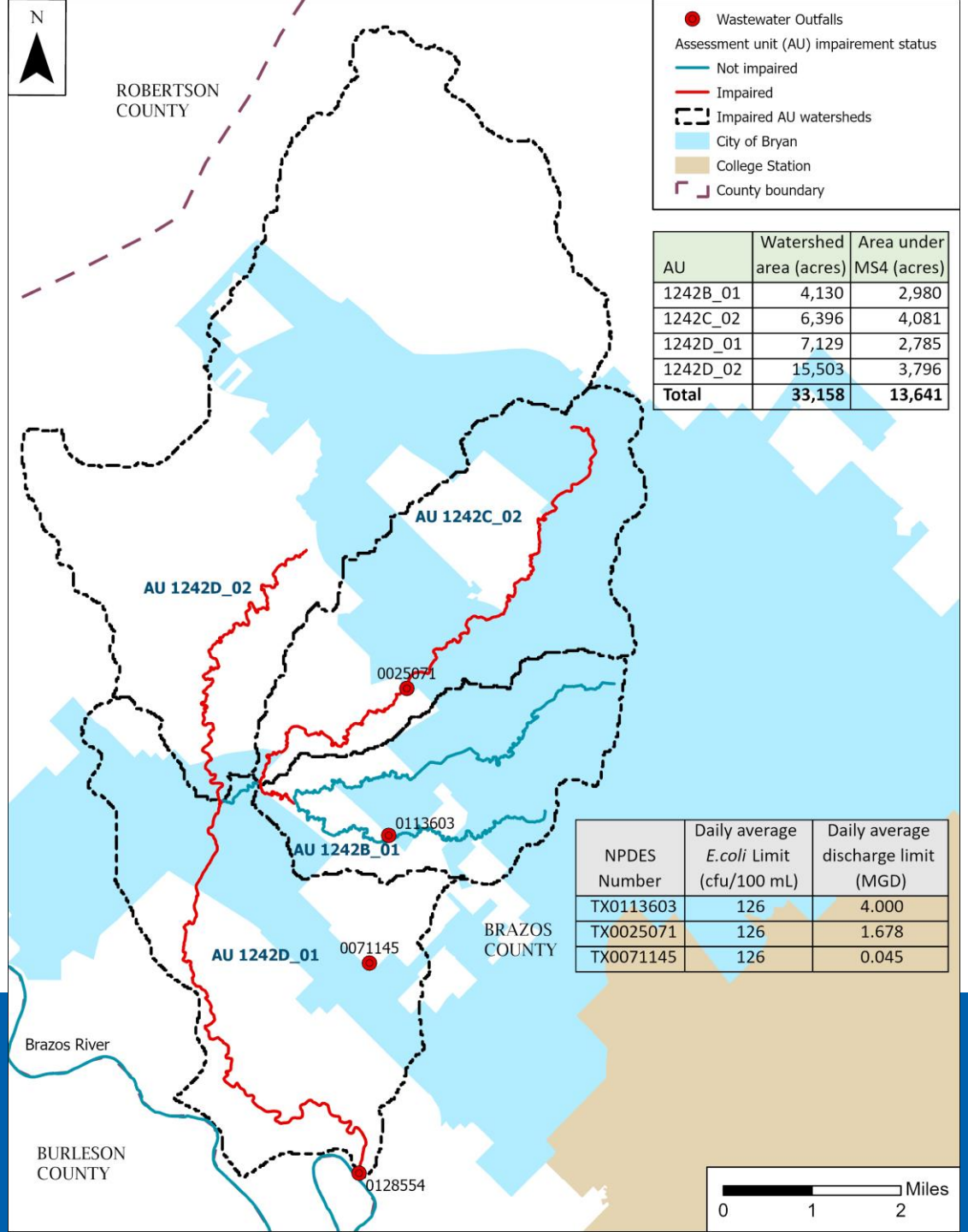
Wastewater Treatment Facilities

Facility	NPDES Number	Daily Avg Discharge Limit	*E. coli* Limit
Still Creek	TX0025071	1.678 MGD	126 cfu/100 ml
Sanderson Farms	TX0113603	4.000 MGD	126 cfu/100 ml
Riverside	TX0071145	0.045 MGD	126 cfu/100 ml
Thompsons Creek	TX0128554	0.045 MGD	126 cfu/100 ml



AU	Watershed area (acres)	Area under MS4 (acres)
1242B_01	4,130	2,980
1242C_02	6,396	4,081
1242D_01	7,129	2,785
1242D_02	15,503	3,796
Total	**33,158**	**13,641**

NPDES Number	Daily average *E.coli* Limit (cfu/100 mL)	Daily average discharge limit (MGD)
TX0113603	126	4.000
TX0025071	126	1.678
TX0071145	126	0.045

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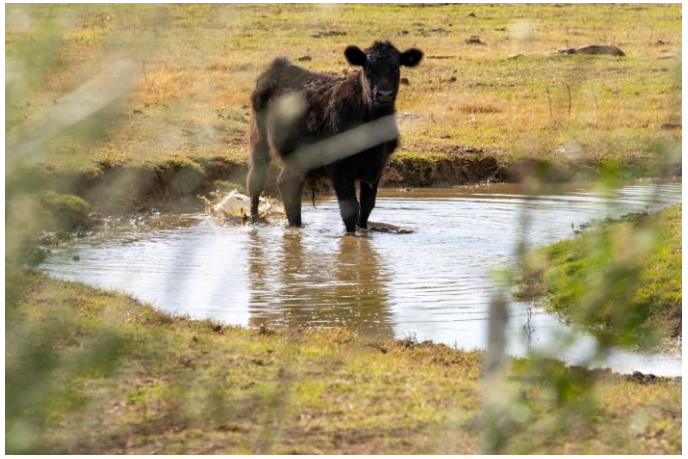
Permitted Stormwater

- City of Bryan Phase II Municipal Separate Storm Sewer System (MS4) Permit (41% of the watershed)
- 39 Multi-Sector General Permits
- 45 Construction General Permits

Potential Sources

- **Nonpoint sources – not regulated**
  - On-site sewage facilities
  - Livestock (cattle, goats, sheep, horses)
  - Wildlife (deer)
  - Feral hogs
  - Dogs and Cats



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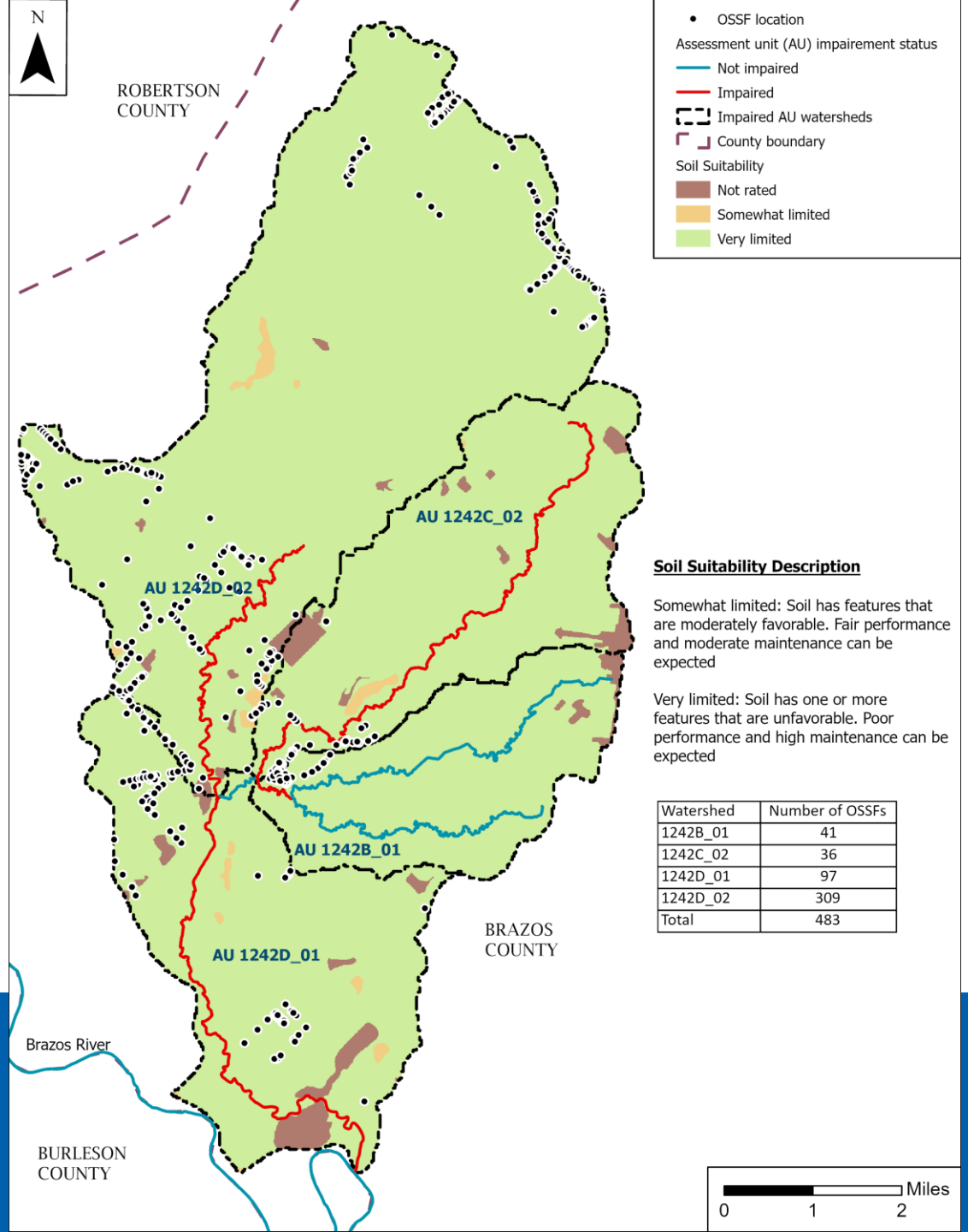
On-Site Sewage Facilities

- Estimated total – 483
- Estimate based on
  - 911 addresses visually validated with aerial imagery data
  - Outside the area covered by the Certificate of Convenience and Necessity
  - 12% estimated failure rate



Watershed	Number of OSSFs
1242B_01	41
1242C_02	36
1242D_01	97
1242D_02	309
Total	483

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Livestock

2022 U.S Department of Agriculture (USDA) National Agricultural Statistics Service (NASS)

Assessment unit	Cattle	Goats	Sheep	Horses
1242B_01	423	7	19	16
1242C_02	600	10	27	22
1242D_01	1,272	20	56	46
1242D_02	2,733	42	121	98
Total	5,028	79	223	182

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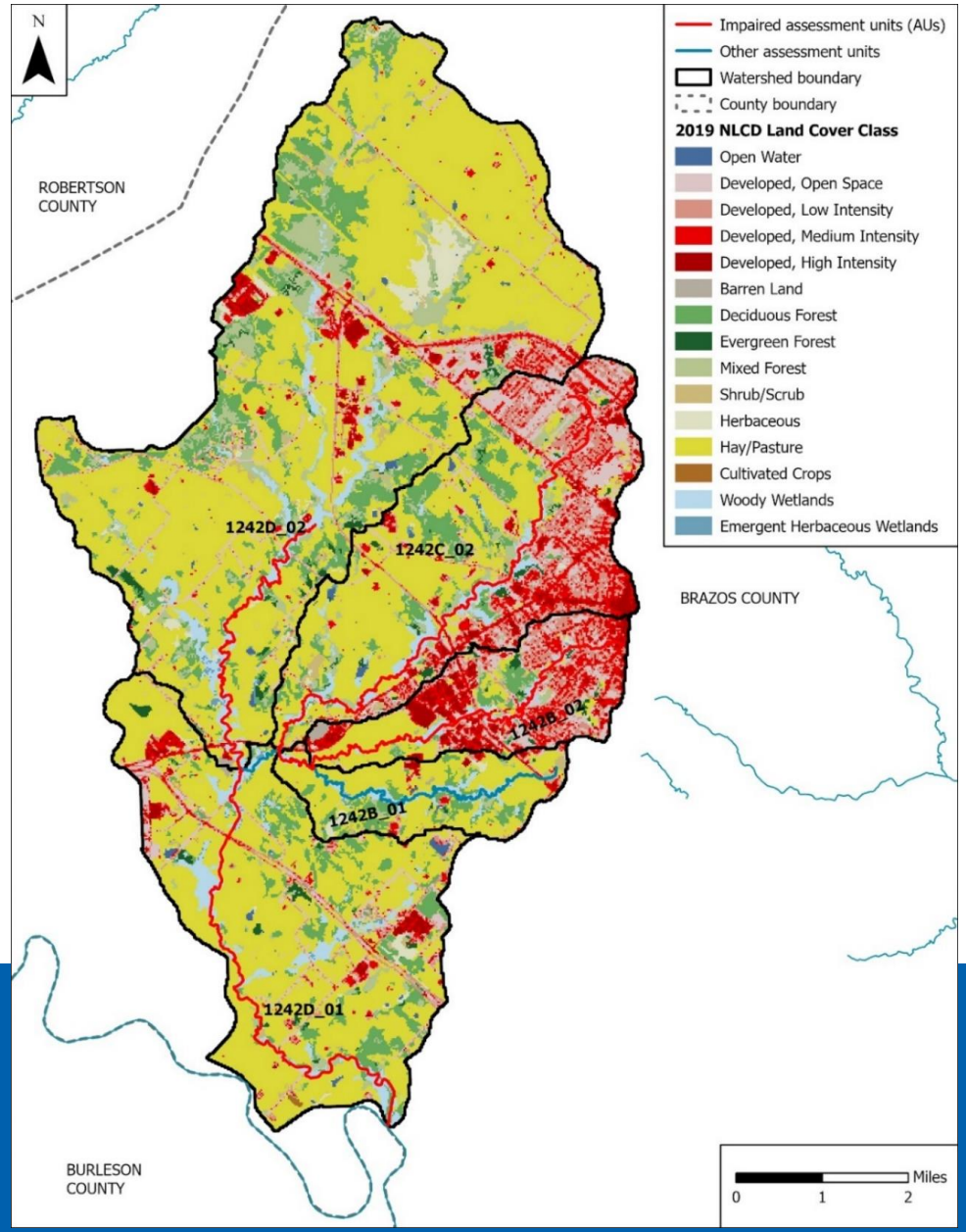
Cattle Population in Watershed – Method 1

- Estimated total – 5,028 (4 acres/head)
- Estimated based USDA NASS county-level data
- Grazeable land
  - Hay/pasture (improved pasture)
  - Unimproved pasture

Subwatersheds	Cattle
1242B_01	423
1242B_02	600
1242D_01	1,272
1242D_02	2,733
Watershed Total	5,028



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Cattle Population in Watershed – Method 2

- Estimated total - 9,162 based on 2 ac/head
- Estimated total- 2,292 based on 8 acres/head
- Assume that all grazable lands are stocked

Method 3 – stakeholder recommended stocking rates?

Other Livestock Populations in Watershed

- Estimated based on 2022 USDA NASS county-level data
- Downscaled to subwatershed level

Subwatersheds	Goats	Sheep	Horses
1242B_01	7	19	16
1242C_02	10	27	22
1242D_01	20	56	46
1242D_02	42	121	98
Watershed Total	79	223	182

Wildlife – Deer in Watershed

- **Estimated total – 1,000**
- **Estimated based on Texas Parks and Wildlife Department survey in 2019**
  - 25.3 ac of suitable habitat per deer
    - Forest
    - Crop lands
    - Hay/pasture
    - Shrub/scrub
    - Herbaceous
    - Wetlands

Feral Hogs in Watershed – Method 1

- Estimated based on "Feral Hog Population Growth, Density and Harvest in Texas"
- Estimated total – 652
- Based on 39 ac of suitable habitat per hog
  - Excluding open water and developed lands
  - 1.8 ~ 3.4 million (average 2.6 million) statewide

Feral Hogs in Watershed – Method 2

- Estimated based on "Education Program for Improved Water Quality in Copano Bay Task Two Report"
- Estimated total – 764
  - Based on 33.3 ac/hog

    - Excluding barren lands, open water, developed lands, and emergent herbaceous wetlands

Method 3 – stakeholder recommended density?

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Dogs in Watershed – Method 1

- Total – 5,487
- Estimate of approximately 1 in 3 homes own a dog, based on 2017-2018 American Veterinary Medical Association U.S. pet statistics

Subwatersheds	Dogs
1242B_01	1,786
1242C_02	2,674
1242D_01	275
1242D_02	752

Method 2 stakeholder recommended # of dogs/house?

Cats in Watershed – Method 1

- Total – 3,866
- Estimate of approximately 1 in 2 homes own a cat, based on 2017-2018 American Veterinary Medical Association U.S. pet statistics

Subwatersheds	Cats
1242B_01	1,258
1242C_02	1,884
1242D_01	194
1242D_02	530

Method 2 stakeholder recommended # of cats/house?

Thank you - Questions?

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