



# Medina River Below Diversion Dam Watershed Planning Meeting

St. Louis Braden Keller Community Center  
March 28, 2024

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Medina River Watershed  
Protection Plan

# Agenda

**Welcome and Introductions**

**Stakeholder Ground Rules & Decision-Making**

**Overview and Discussion of Chapters 1-3**

**Potential Pollutant Sources**

**Work Group Overview**

**Open Discussion and Questions**

# Stakeholder Group Ground Rules and Decision-Making Processes



# Stakeholder Group Ground Rules

## Agree to...

- ✓ *provide insights, suggestions, and concerns about the watershed and water quality,*
- ✓ *determines what components will be included in the WPP, and*
- ✓ *review and approve draft and revised WPP.*

## Framework

Representative Membership

Consensus-based Decision-Making

Topical Work Groups

- Refine WPP inputs
- Recommend actions to reduce pollutant loading

Questions or  
Comments?

# Review of WPP Chapters 1-3



# Chapter 1

## Introduction to Watershed Management

- ✓ Definition of a Watershed
- ✓ The Watershed Approach
- ✓ Watershed Protection Plan
- ✓ Watershed and Water Quality
- ✓ Point and Nonpoint Source Pollution
- ✓ Adaptive Management
- ✓ Education and Outreach

Questions or  
Comments?

# Chapter 2

## Watershed Characterization

Questions or  
Comments?

### Watershed Description

- ✓ Medina River
- ✓ Medio Creek
- ✓ Polecat Creek

### Physical Characteristics

- ✓ Topography and Soils
- ✓ Ecoregions
- ✓ Population
- ✓ Land Use and Land Cover
- ✓ Climate
- ✓ Groundwater Resources

### Water Management in Texas

# Chapter 3

## Water Quality

- ✓ Watershed Assessments
- ✓ Texas Surface Water Quality Standards
- ✓ Bacteria
- ✓ Dissolved Oxygen
- ✓ Nutrients
- ✓ Flow

Questions or  
Comments?



# Potential Pollutant Sources



# Sources of Pollutants

## Point sources

- Wastewater treatment plants
- Sanitary sewer overflows
- Construction sites (permitted, >1 ac)



## Nonpoint sources

- On-site sewage facilities
- Livestock
- Wildlife (deer) & Feral hogs
- Domestic dogs

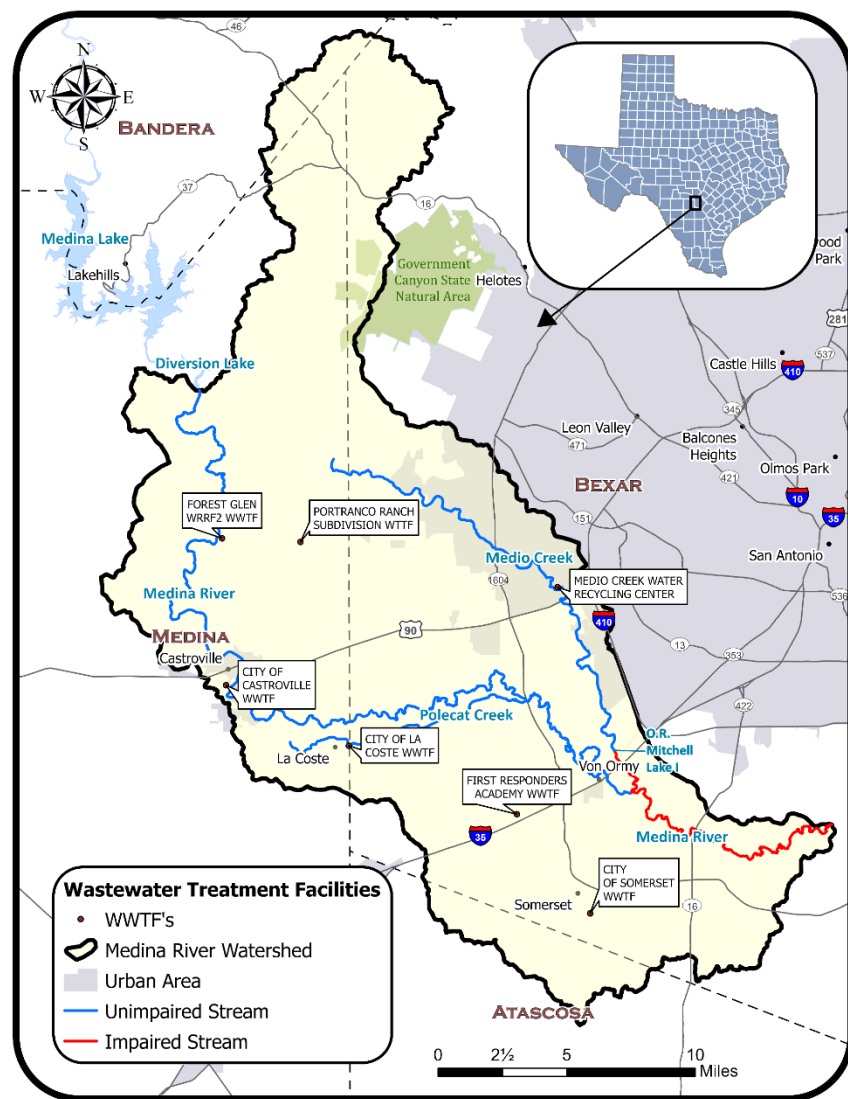


# Wastewater Treatment Facilities

Facility	Flow (MGD/day)	
	Permit Limit (current/ultimate)	Reported Daily Avg
Medio Creek WRC	16.0	9.0
City of Castroville	0.7	*
City of Somerset	0.32	0.094
City of La Coste	0.2	0.15
Portranco Ranch <sup>1</sup>	0.108 / 0.24	0.079
Forest Glen WRRF2 <sup>1</sup>	0.06 / .023	*
SARA 1 <sup>st</sup> Responders Academy	0.025	0.003
<b>Total Flow=</b>	<b>17.7</b>	<b>9.5</b>

<sup>1</sup>phased permit for facility expansion

\* = not reported



# Wastewater Treatment Facilities

10/2020 - 03/2024	E. coli (cfu/100 mL)		Nitrogen – NH4 (mg/L)		Total Phosphorus (mg/L)		Discharge Violations
Facility	Permit Limit	Reported Daily Avg	Permit Limit	Reported Daily Avg	Permit Limit	Reported Daily Avg	
Medio Creek WRC	126	2	2.0	0.4	n/a	n/a	Nitrogen (2)
City of Castroville	126	*	2.0	*	1.0	*	none
City of Somerset	126	1	n/a	n/a	n/a	n/a	none
City of La Coste	126	1	3.0	0.9	n/a	n/a	Nitrogen (2)
Portranco Ranch <sup>1</sup>	126	31	n/a	n/a	n/a	n/a	none
Forest Glen WRRF <sup>2</sup> <sup>1</sup>	126	*	2.0 / 1.0	*	0.15	*	E. coli (2) BOD (4) TSS (7)
SARA 1 <sup>st</sup> Responders Academy	126	1	3	0.002	n/a	n/a	none

<sup>1</sup> phased permit for expansion; permit limit = current/ultimate

\* = not reported; n/a = not applicable

# Sanitary Sewer Overflows



17 sanitary sewer overflow incidents in the past 5 years

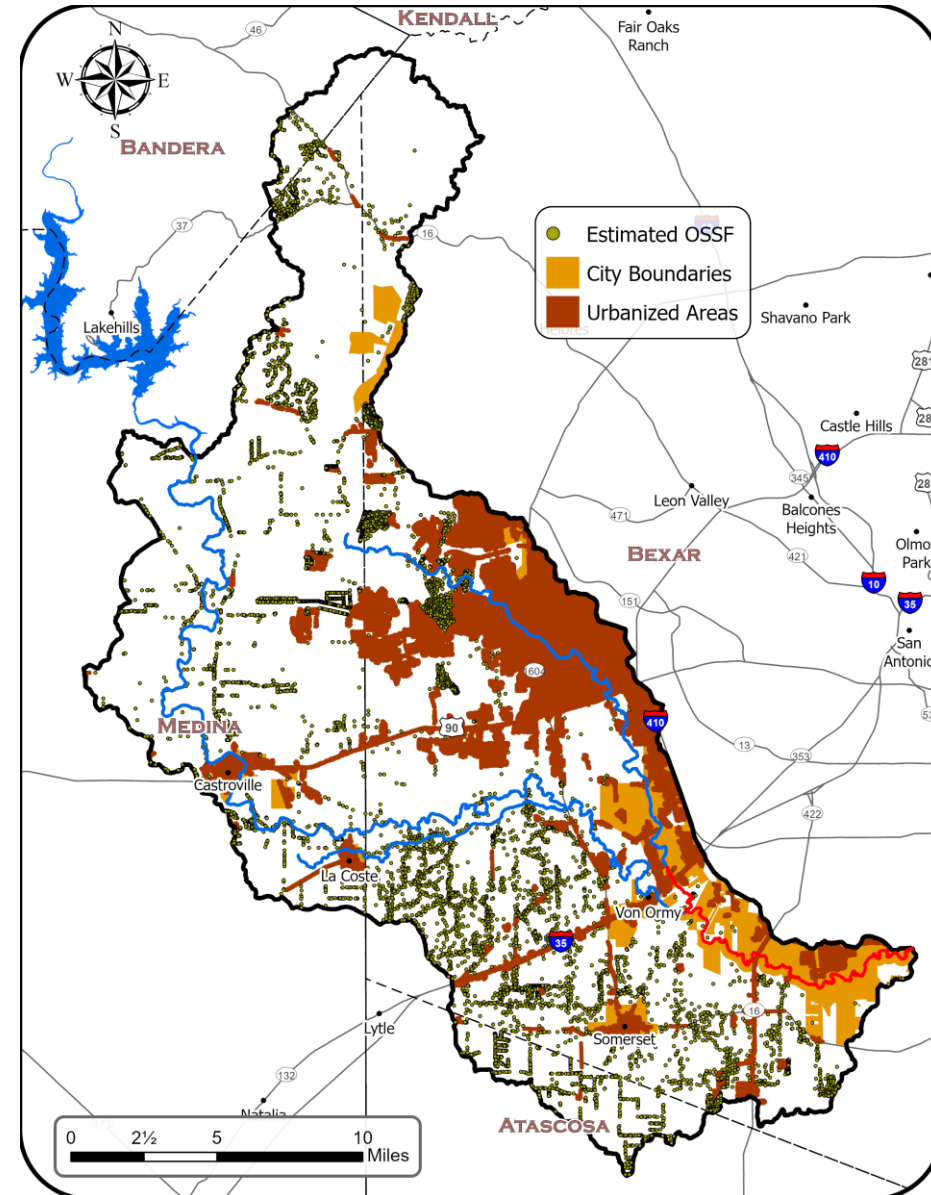
Facility	# of Spills	Year(s)	Total Amount Spilled (gallons)	Causes
Medio Creek WRC	14	2019-2023	240,079	Infiltration & Inflow (1) Grease Blockage (7) Line Blockage (non-grease) (3) Line Break (2) Human Error (1)
Castroville WWTF	1	2023	7,500	Equipment/Electrical Failure
Somerset WWTF	1	2021	50	Equipment Failure
Portranco Ranch Subdivision WWTF	1	2023	7,500	Equipment/Electrical Failure

# On-Site Sewage Facilities

Estimated 8,111 OSSFs

Based on

- ✓ 2021 map of 911 addresses
- ✓ 2020 U.S. Census households
- ✓ 2022 satellite imagery
- ✓ Municipal jurisdictions
- ✓ Urbanizing areas



# On-Site Sewage Facilities

Estimated 8,111 OSSFs

NRCS Soil Suitability

891 - Somewhat Limited soils

7,220 - Very Limited soils

Potential contact with water bodies

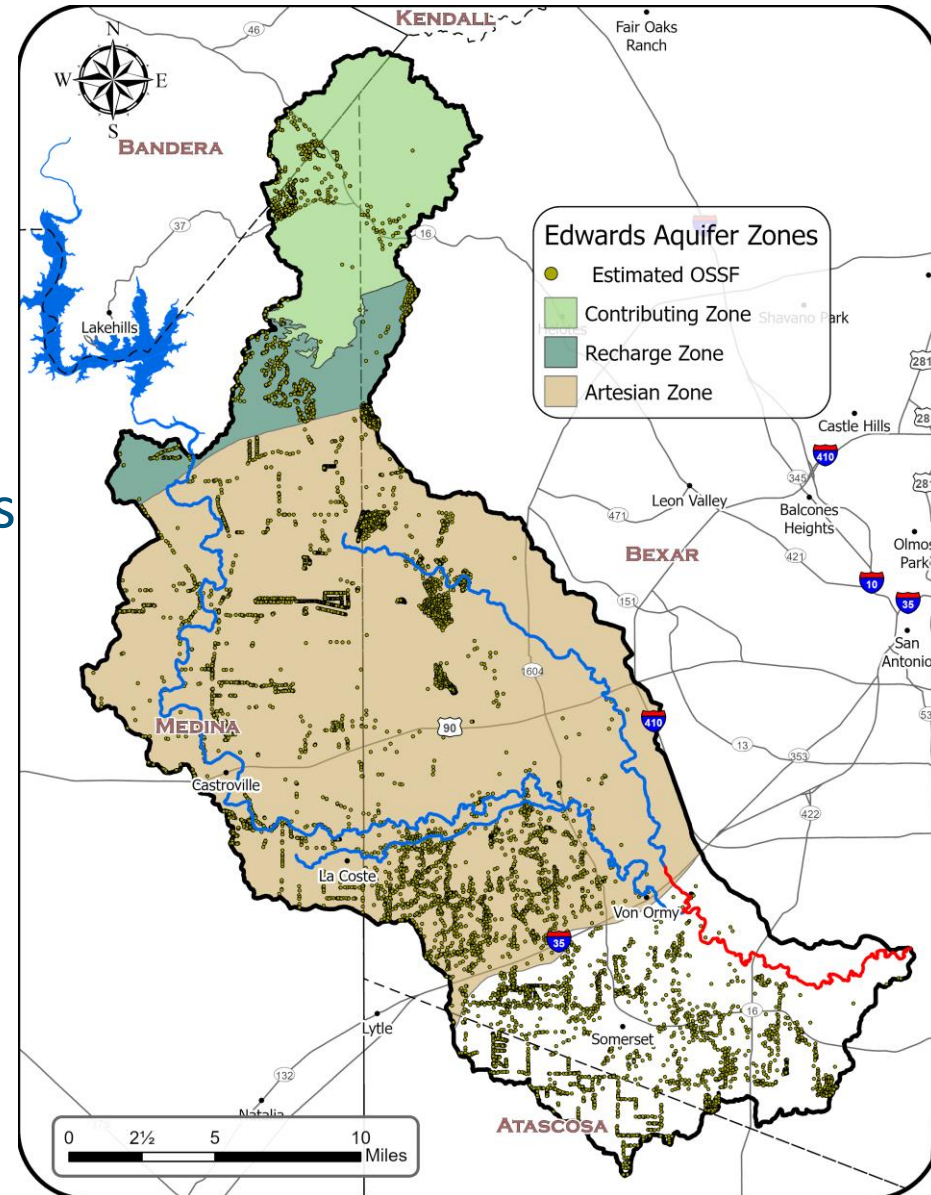
479 - EA Contributing Zone

497 - EA Recharge Zone

4,777 - EA Artesian Zone

2,358 - not over Edwards Aquifer

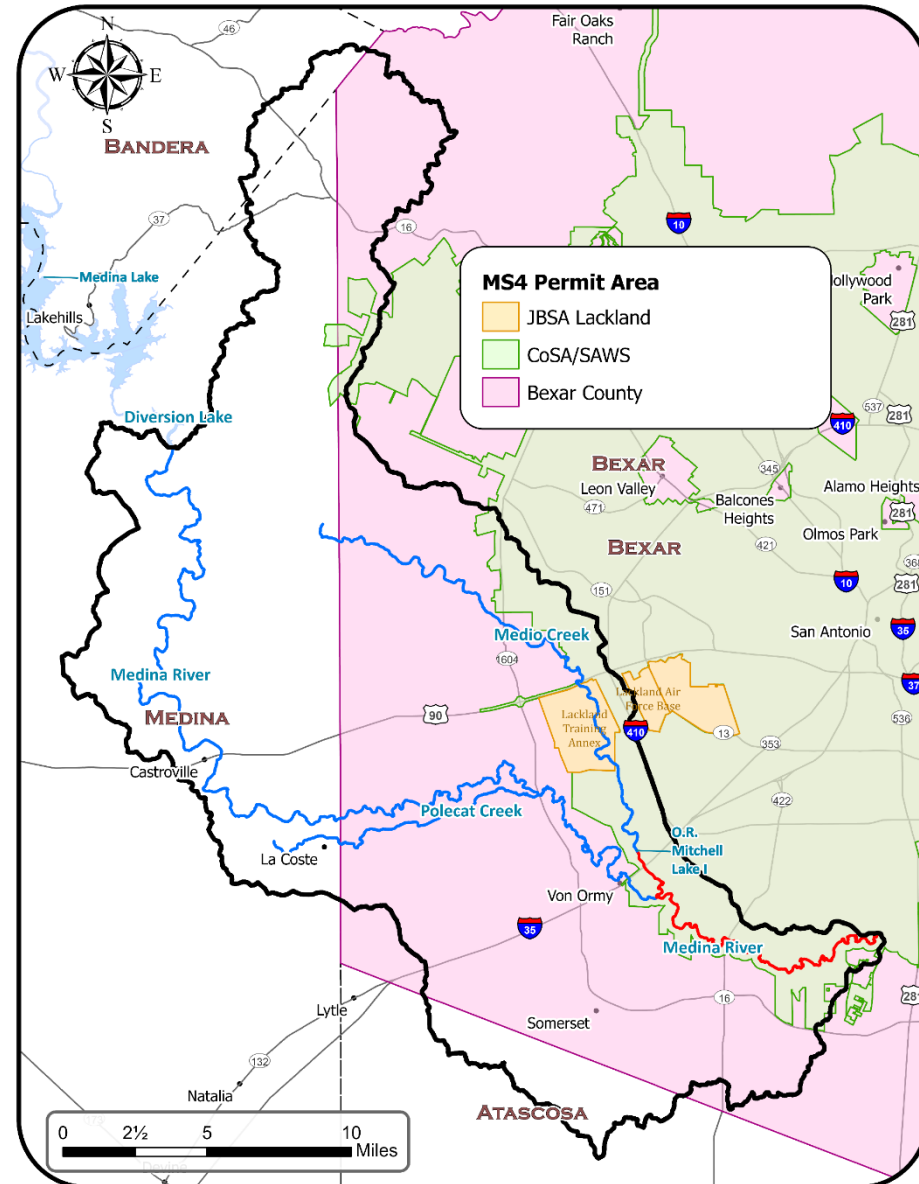
633 w/in 100 yds of a stream



# Regulated Urban Stormwater

## 4 Municipal Separate Storm Sewer Systems (MS4)

- ✓ JBSA – Lackland
- ✓ Joint City of San Antonio (CoSA) and San Antonio Water System (SAWS)
- ✓ Bexar County
- ✓ Texas Department of Transportation (TxDOT)





# Livestock

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

	Livestock in County			
Livestock	Atascosa	Bandera	Bexar	Medina
Cattle	65,442	5,300	31,702	37,161
Hogs/Pigs	474	439	2,361	693
Sheep/Lambs	1,594	2,300	7,240	2,717
Goats	1,678	8,027	6,387	5,145
Horse	1,776	550	1,554	1,417
Poultry - Layers	4,667	3,084	9,061	11,893
Poultry - Broilers	480	138	2,495	350

# Livestock

## - Cattle Population in Watershed – Method 1

Estimated = 13,028

County	Estimated
Atascosa	832
Bandera	50
Bexar	9,194
Medina	2,953

Based on USDA NASS county-level data

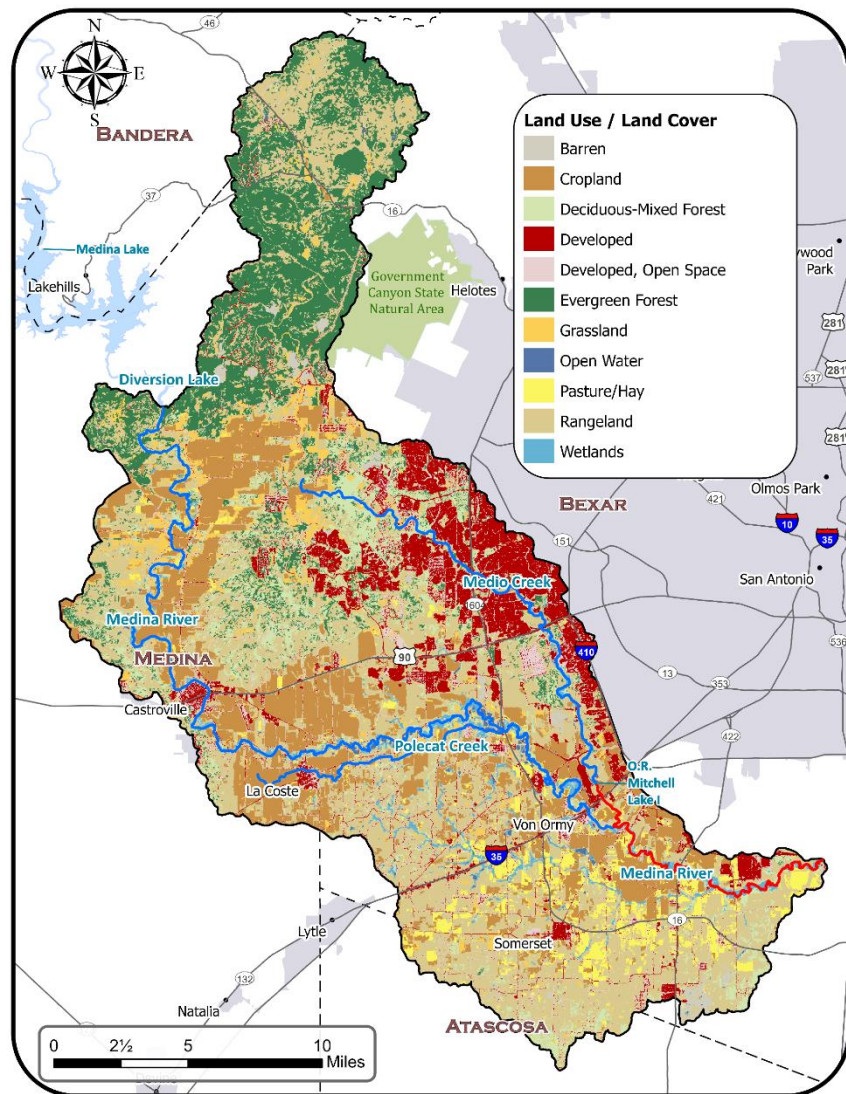
Downscaled to subwatershed level

$$\frac{\text{grazeable land in subwatershed}}{\text{grazeable land in county}} \times \# \text{ of cattle in county}$$

Grazeable land:

Pasture/Hay      Rangeland/Grassland

Deciduous & Mixed Forest

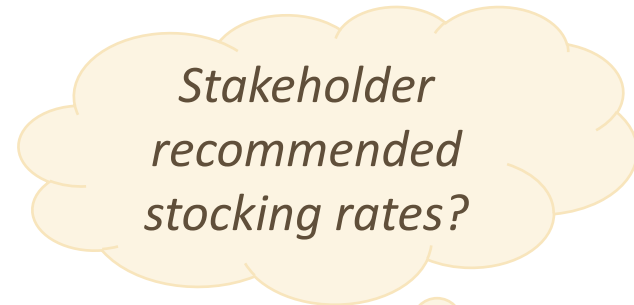


# Livestock

## - Cattle Population in Watershed – Method 2

**Estimated = 6,835**

Land Cover	Stocking Rate (ac/head)	Cattle
Pasture/Hay	6	1,705
Grassland	15	649
Rangeland	26	3,791
Deciduous-Mixed Forest	28	690



Based on USDA FSA recommended stocking rates

*Assume all available lands are fully stocked*

# Livestock

## - Other Populations in Watershed

*Stakeholder recommendation?*

County	Horses	Sheep	Goats	Pigs	Chickens
Atascosa	23	20	21	6	65
Bandera	5	22	75	4	30
Bexar	451	2,100	1,852	685	3,351
Medina	113	216	409	55	973
<b>Estimated</b>	<b>591</b>	<b>2,357</b>	<b>2,358</b>	<b>750</b>	<b>4,420</b>

Based on USDA NASS county-level data

$$\frac{\text{grazeable land in watershed}}{\text{grazeable land in county}} \times \# \text{ of cattle in county}$$

Grazeable land: Rangeland/Grassland

Pasture/Hay

Deciduous & Mixed Forest



# Wildlife

## - Deer Population in Watershed

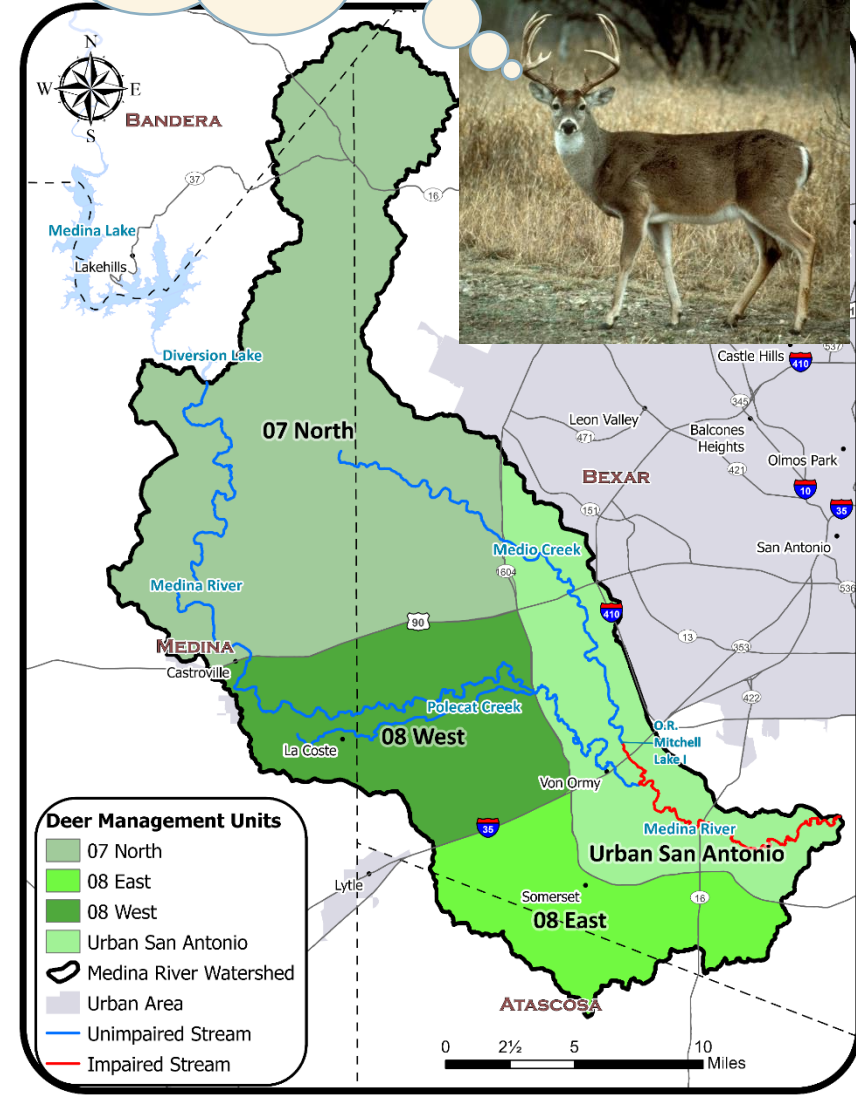
Estimated = 23,082

DMU	Density (#/1,000 ac)	Deer
07 North	156.6	20,658
08 West	30.5	1,530
08 East	25.6	894
Urban San Antonio	n/a	n/a

Land uses included:

All Forest Pasture/Hay Grassland  
Rangeland Wetland

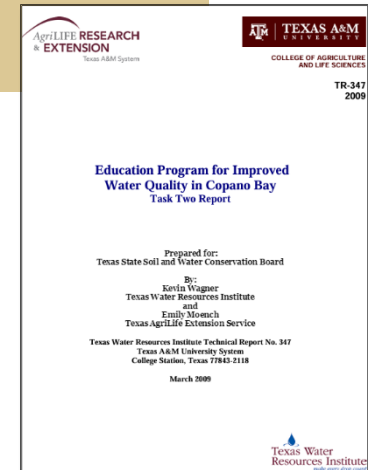
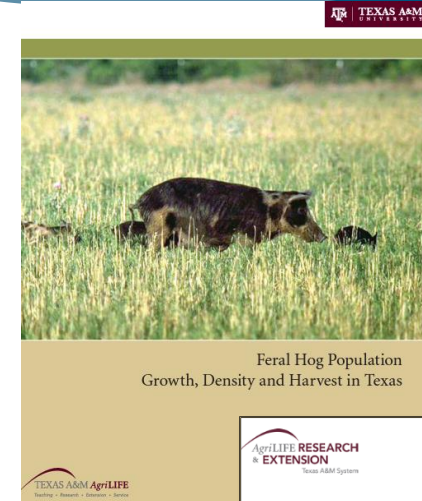
Based on average density in TPWD surveys  
2015 – 2022



# Feral Hogs - Method 1

Estimated = 2,100 - 5,356

Land Cover	Density (ac/hog)			
	32 <sup>1</sup>	33.3 <sup>1</sup>	39 <sup>2</sup>	71 <sup>2</sup>
Pasture/Hay	320	307	1,405	772
Grassland	30	32	7	13
Rangeland	3,174	3,050	1,337	735
Cropland	13	13	29	52
Forest	1,543	1,485	567	404
Wetland	276	265	227	125
<b>Estimated</b>	<b>5,356</b>	<b>5,153</b>	<b>3,573</b>	<b>2,100</b>



Includes all land uses *except*: barren lands, open water, developed lands

<sup>1</sup>Based on *Education Program for Improved Water Quality in Copano Bay Task 2 Report, 2009*

<sup>2</sup>Based on *Feral Hog Population Growth, Density and Harvest in Texas, 2012*

# Domestic Dogs

*Stakeholder recommended density?*

**Estimated = 49,744**

County	Households	Dogs
Atascosa	1,420	925
Bandera	358	233
Bexar	68,857	44,837
Medina	5,758	3,749

Approximately 2 of 3 households owns at least 1 dog (= Average 0.65 dog/household).

Estimated using 2022 American Veterinary Medical Association “*Pet Ownership and Demographics Sourcebook*”



*Other sources  
not identified?*



1.

2.

3.

4.

5.



# Work Groups



# Work Group Overview

- ✓ Reviews pollutant source estimates (Chapter 4)
- ✓ Recommends implementation strategies, goals and priorities to include in the WPP
- ✓ Work with project facilitator to draft and refine recommended WPP content specific to the work group
- ✓ Expected to be 3 – 4 monthly meetings at most

# Issues and Actions

## ISSUES

- ✓ Water Quality
- ✓ Water Quantity
  - ✓ Wells Drying
  - ✓ Drought
  - ✓ Flooding
- ✓ Point Sources
  - ✓ WWTP
- ✓ Excessive Recreation
- ✓ Illegal Dumping
- ✓ Population Growth
- ✓ Government Enforcement
- ✓ Monitoring

## POTENTIAL ACTIONS

- ✓ Restore Water Quality
- ✓ Point Sources
  - ✓ Improve WWTP
- ✓ Nonpoint Source
  - ✓ Control Runoff
  - ✓ Clean Trash
  - ✓ Preserve Undeveloped Areas
  - ✓ Control Cedar
  - ✓ Control Invasives
  - ✓ Remove Trees
  - ✓ Control Erosion
- ✓ Education
- ✓ Funding & Incentives
- ✓ Monitoring

# Work Groups

Volunteers	Ag & Rural Concerns	Development Ordinances & Planning	Hydrology Issues (Stormwater, Flooding, Wastewater)	Education	Parks and Recreation
Beth Bourquin	X	X			
Jessica Castiglione		X			
Meg Conner*			X	X	
Gregg Eckhardt			X		
Mark Glasser			X		
Nathan Glavy*		X	X	X	
Lou Griffin		X			
Brian Koch	X				
Jeff McFall					X
Kendria Ray	X				
Bonnie Sallee*	X			X	
Gary Schott	X				
Philip Tschirhart	X	X			
Others?					

\*on multiple workgroups

# Ag & Rural Concerns Work Group



Chairperson? \_\_\_\_\_

Meeting Schedule? \_\_\_\_\_

## Volunteers

Beth Bourquin

Brian Koch

Kendria Ray

Bonnie Sallee

Gary Schott

Philip Tschirhart

Others?

## Priority Issues?

1.

2.

3.

4.

# Development, Ordinances, & Planning Work Group



Chairperson? \_\_\_\_\_

Meeting Schedule? \_\_\_\_\_

Volunteers
Beth Bourquin
Jessica Castiglione
Nathan Glavy
Lou Griffin
Philip Tschirhart
Others?

Priority Issues?
1.
2.
3.
4.

# Hydrology Issues Work Group

(stormwater, flooding, wastewater)



Chairperson? \_\_\_\_\_

Meeting Schedule? \_\_\_\_\_

Volunteers
Meg Conner
Gregg Eckhardt
Mark Glasser
Nathan Glavy
Others?

Priority Issues?
1.
2.
3.
4.

# Education Work Group

Chairperson? \_\_\_\_\_

Meeting Schedule? \_\_\_\_\_

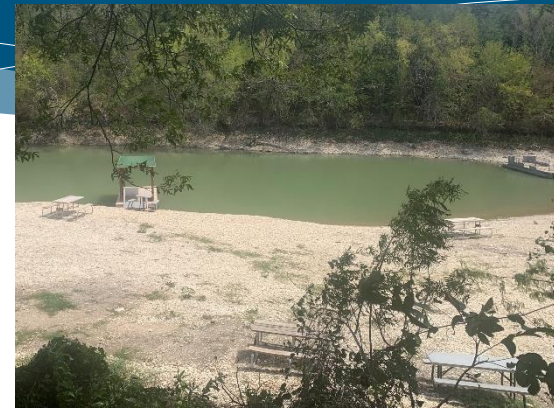


Volunteers
Meg Conner
Nathan Glavy
Bonnie Sallee
Others?

Priority Issues?
1.
2.
3.
4.



# Parks & Recreation Work Group



Chairperson? \_\_\_\_\_

Meeting Schedule? \_\_\_\_\_

## Volunteers

Jeff McFall

Others?

## Priority Issues?

1.

2.

3.

4.



# Open Discussion and Questions

Next Stakeholder Meeting?

# Thank you!

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979-314-2361

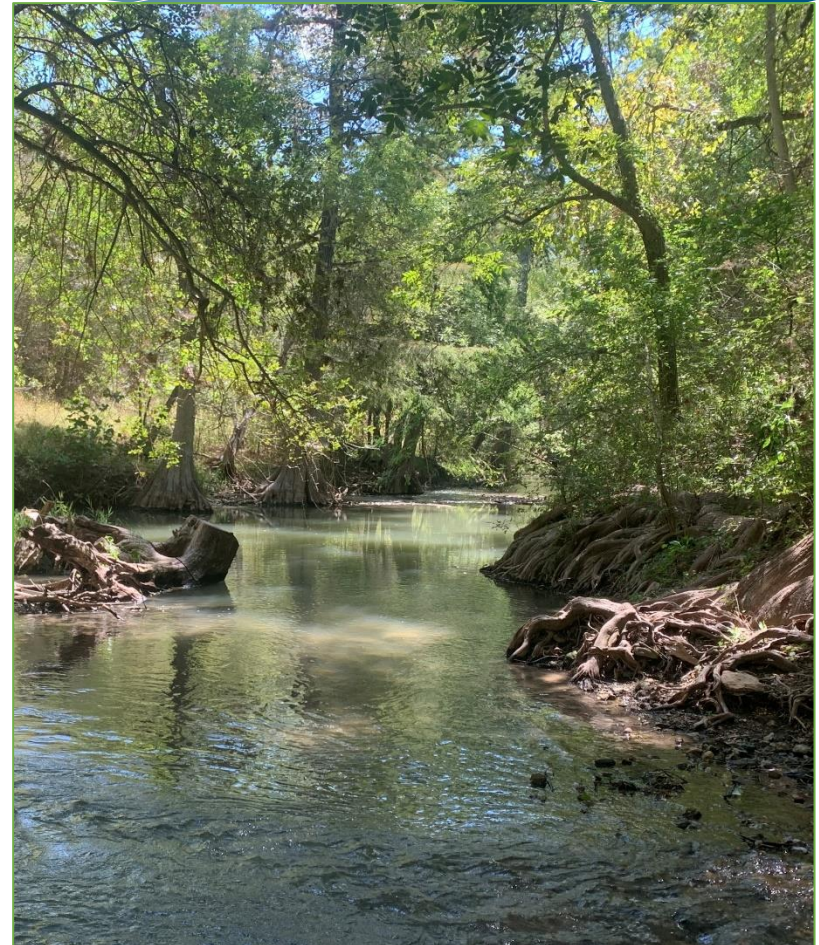
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Protection Plan