Geronimo and Alligator Creeks Watershed Steering Committee Meeting

February 9, 2010

GBRA River Annex

Seguin, Texas

Welcome and Introductions

Debbie Magin
Guadalupe Blanco River Authority

Update on Additional Steering Committee Members and Signing of the Ground Rules

Nikki Dictson

Texas AgriLife Extension Service

Stakeholder Participation

The general public is encouraged to attend all of the meetings and there are three levels of potential participation that include:

- Serve as a Steering Committee Member
- Serve as a Work Group Member
- Attend and participate in any meetings

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Affiliation	Name
Comal County	Commissioners Jan Kennady/Greg Parker
Guadalupe County	Jimmy Harless/Commissioner Baenziger
City of Seguin	Asst City Manager, Rick Cortes
City of New Braunfels	Nathan Pence
New Braunfels Utilities	Ian Taylor/Roger Biggers
Comal-Guadalupe SWCD	Russell Bading/Kathy Brady
Guadalupe-Blanco River Authority	Lee Gudgell/Cinde Thomas-Jimenez
Elmwood Subdivision/Business	Cecil Schulze
Oakvillage North Subdivision	Gail Minton/Rex Reininger
Landowner/Ag Producer	Roger Bading
Alamo Group/Industry	John Fisher/Lance Williams
Guadalupe Co. Groundwater Conservation District	Gary Rainwater
Texas Lutheran University	Dr. Mark Gustafson/Dr. William Davis
Landowner	Frank Dietz
Landowner	Wayman Krueger
Educator	Susan Hartley/Rissa Springs
Navaro Ed Found	Kim Mueller
Outdoor Learning Center	Otto Kollaus
Citizens' Alliance for Smart Expansion	Joyce Evans/Sue Cummings
Landowner/ Ag Producer	Clinton Dietert
Continental -Corporation	Rebecca Ehrig
Guadalupe County Farm Bureau	John Friesenhahn
Water Supply Corporations	Jeanne Schnuriger/Mark Speed

Types of Stakeholders

Stakeholders can belong to the following:

- Landowners / Ag Producers (6)
- County or regional representatives (4)
- Local municipal representatives (3)
- State and federal agencies (TAG)
- Business and industry representatives (3)
- Citizen groups (2)
- Community service and Religious organizations
- Universities, colleges, and schools (2)
- Environmental and conservation groups (1)
- Soil and water conservation districts (1)
- Subdivisions – urban (2)

Approval and Signing of Ground Rules

- We modified the language to allow for the election of a chair person if necessary.
- Added descriptions of work group tasks

Plum Creek Example of a Watershed Protection Plan

Nikki Dictson

Texas AgriLife Extension Service

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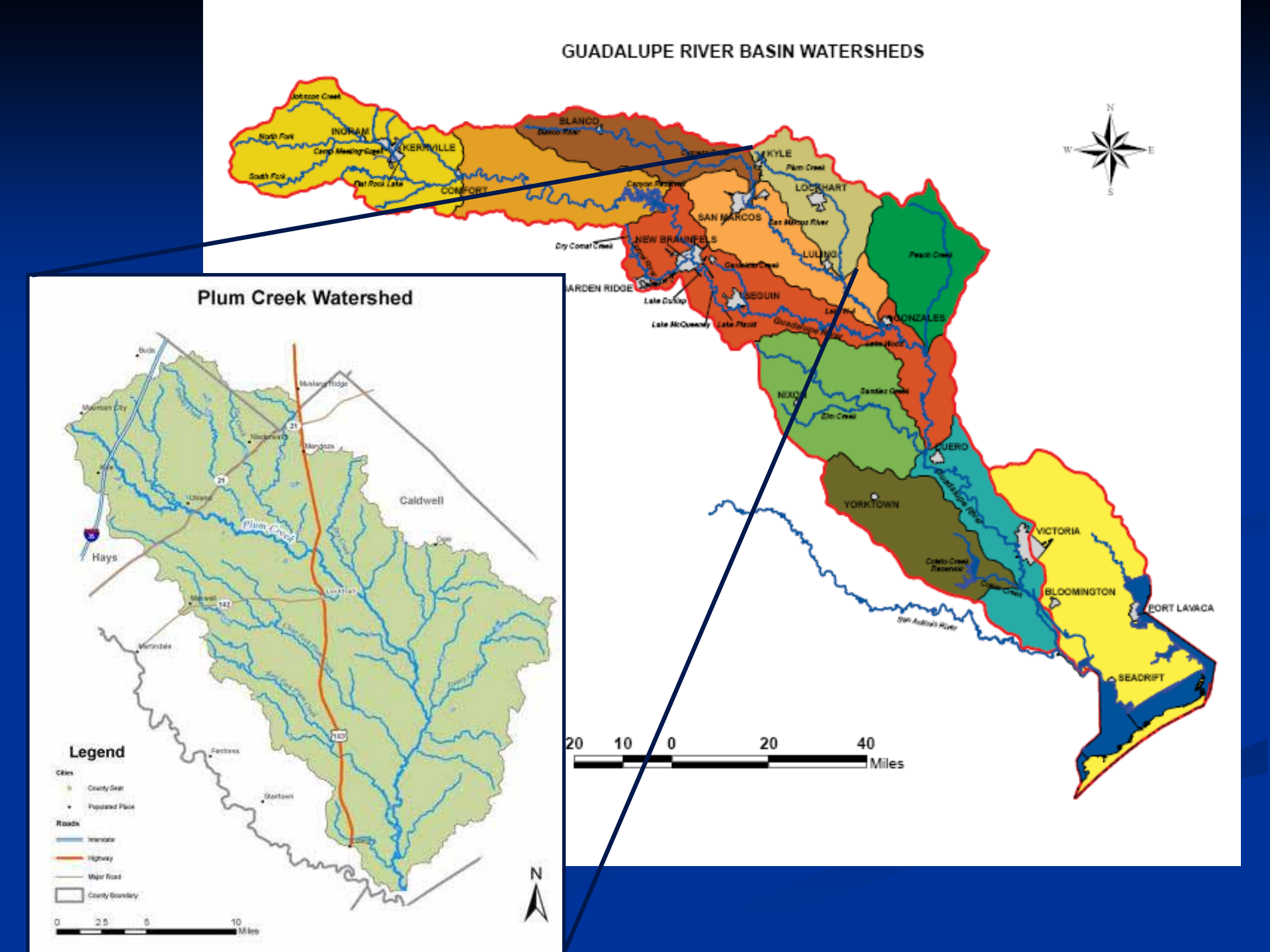
GUADALUPE RIVER BASIN WATERSHEDS
Plum Creek Watershed
Legend
Cities
County Seat
Populated Place
Roads
Interstate
Highway
Major Road
County Boundary
Hays
Caldwell
Buda
Kyle
Lockhart
Luling
Yorktown
Victoria
Bloomington
Port Lavaca
Seadrift
Kerrville
Comfort
Boerne
San Marcos
New Braunfels
Seguin
Gonzales
Miles

Plum Creek Watershed Partnership

- December 15, 2005 - Plum Creek was selected as the pilot watershed by the Wharton Regional Watershed Coordination Steering Committee based on a 10 metric ranking system
- January 2006 - Meeting and watershed tour with Hays & Caldwell County Agents and Caldwell County Commissioner, GBRA, PCCD, and TPWD.
- January thru March
  - Gathering Watershed Data
  - Conducted Meetings and Media Promoting Project

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Plum Creek Watershed Partnership

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Plum Creek Watershed Partnership Meetings

- May 9, 2006 – First Steering Committee Meeting (49)
- June 20, 2006 – Steering Committee Meeting/Work Groups (42)
- July 2006 –Work Group Meetings
- July 2006 – Watershed Tour
- August 10, 2006 – Steering Committee/Technical Advisory Group Meeting (45)

Monthly meetings of either steering committee/ partnership or work group meetings.

Watershed Tour

- On July 27, 2006 from 9:00 am to 4:00 pm.
- 62 participants and speakers
- Tour Stops included:
  - Urban - Plum Creek Subdivision in Kyle at headwaters
  - GBRA's Plum Creek Monitoring Site near Uhland
  - Lockhart Springs in Lockhart
  - Don Meador, Ag Producer
  - Drive on south eastern side of Watershed / Oil Wells
  - Lockhart WWTP Tour by GBRA

Major Tasks

- Identify pollutant sources
- Gather data and information and identify gaps
- Estimate pollutant loads
- Set Goals and Objectives
- Identify BMPs that could be implemented to reduce pollution
- Identify Outreach and Education that is needed
- Develop an Implementation Plan & Schedule

Plum Creek Watershed Partnership

Potential Sources

Potential Sources	Bacteria	Nutrients	Other
Septic Systems	X	X	X
Wildlife			
Deer	X	X	
Feral Hogs	X	X	
Cropland		X	
Livestock			
Sheep and Goats	X	X	
Horses	X	X	
Cattle	X	X	
Oil and Gas Production			X
Urban Runoff	X	X	X
Wastewater Treatment Facilities	X	X	

Assessment Tools

- TAMU team from Spatial Sciences Lab and Biological and Agricultural Engineering Dept.
- Land Use Land Cover Assessment
- Spatially-explicit Geographic Information System (GIS) methodology - SELECT
- Load Duration Curves

Plum Creek Watershed Partnership

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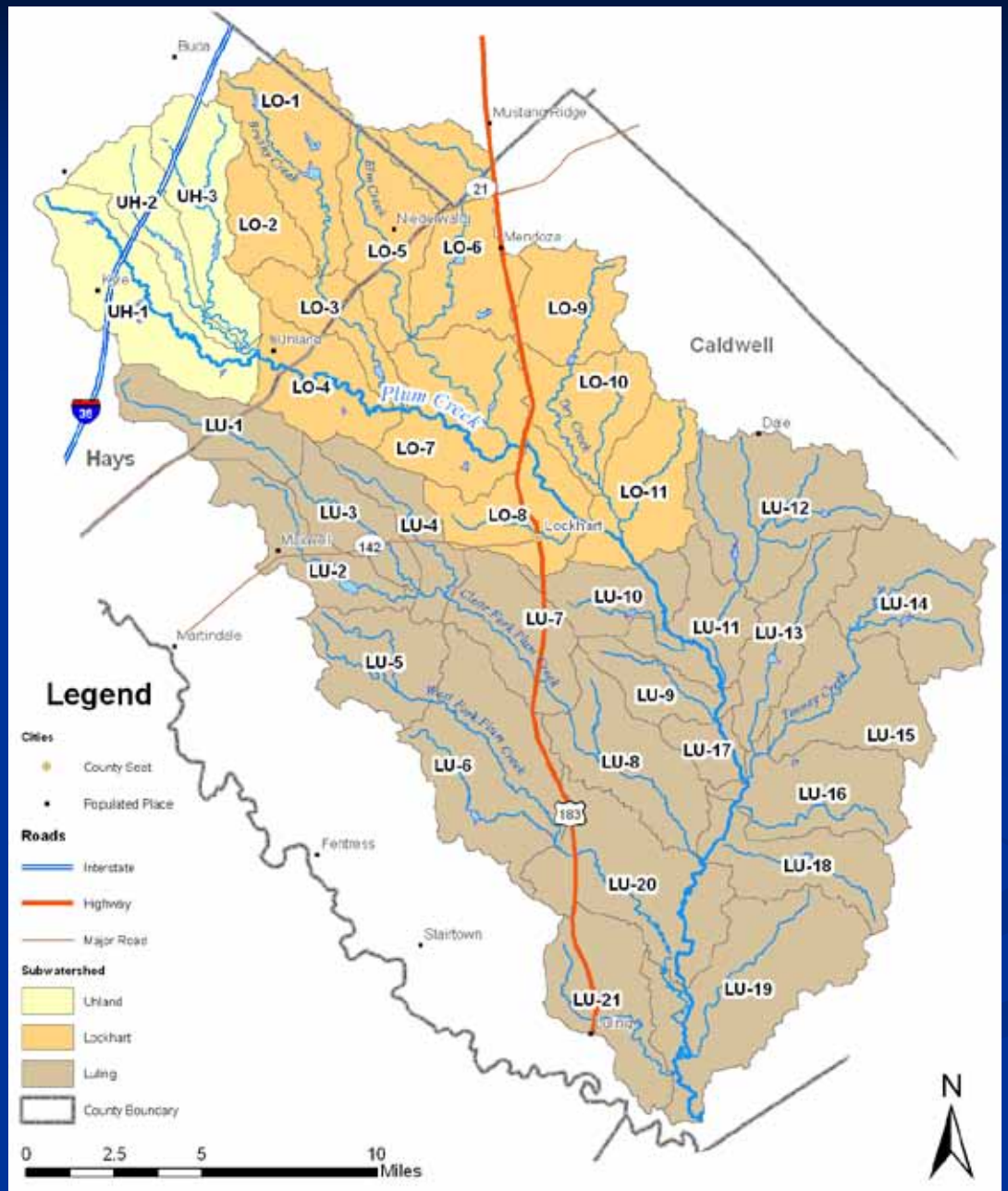
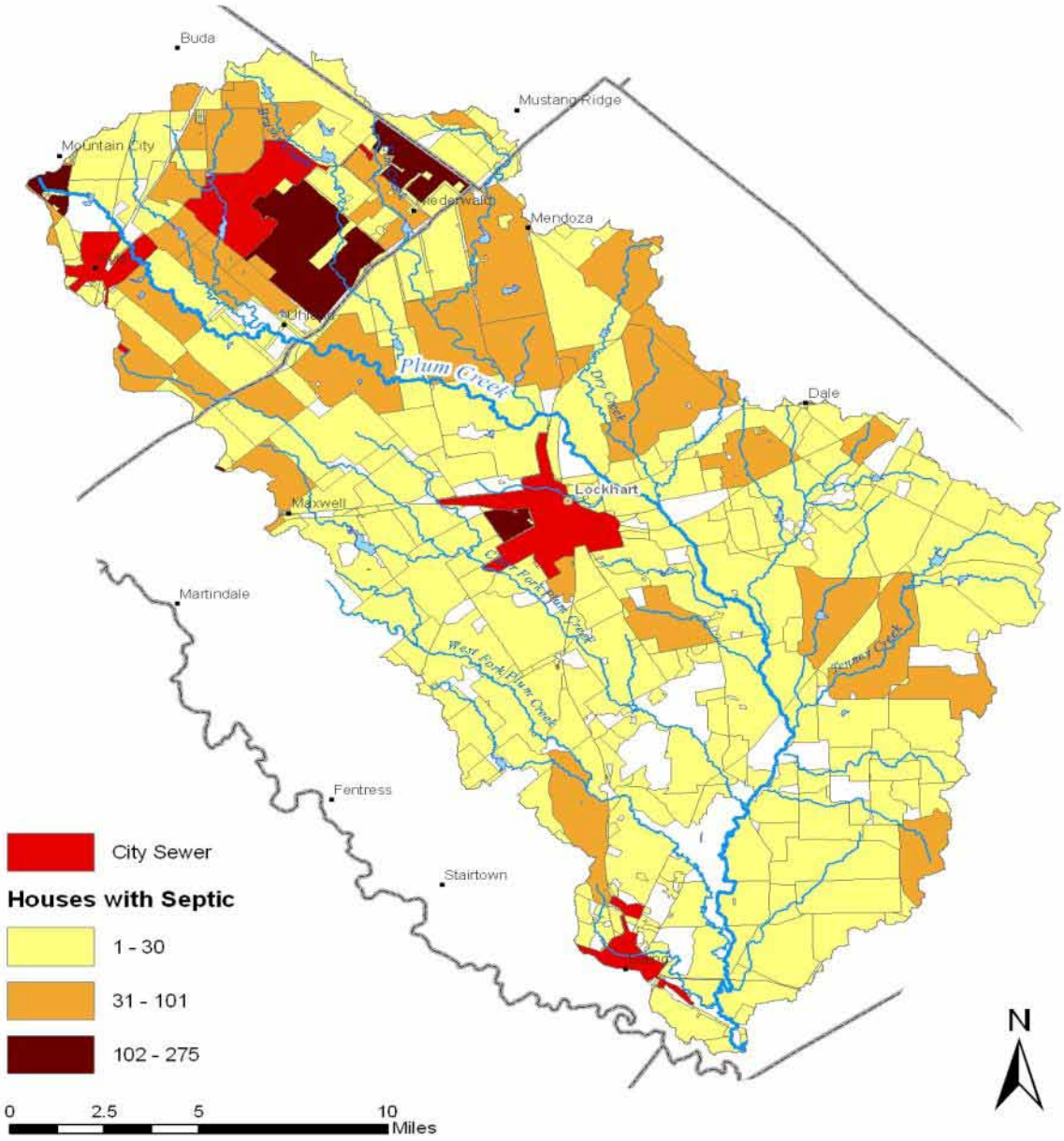
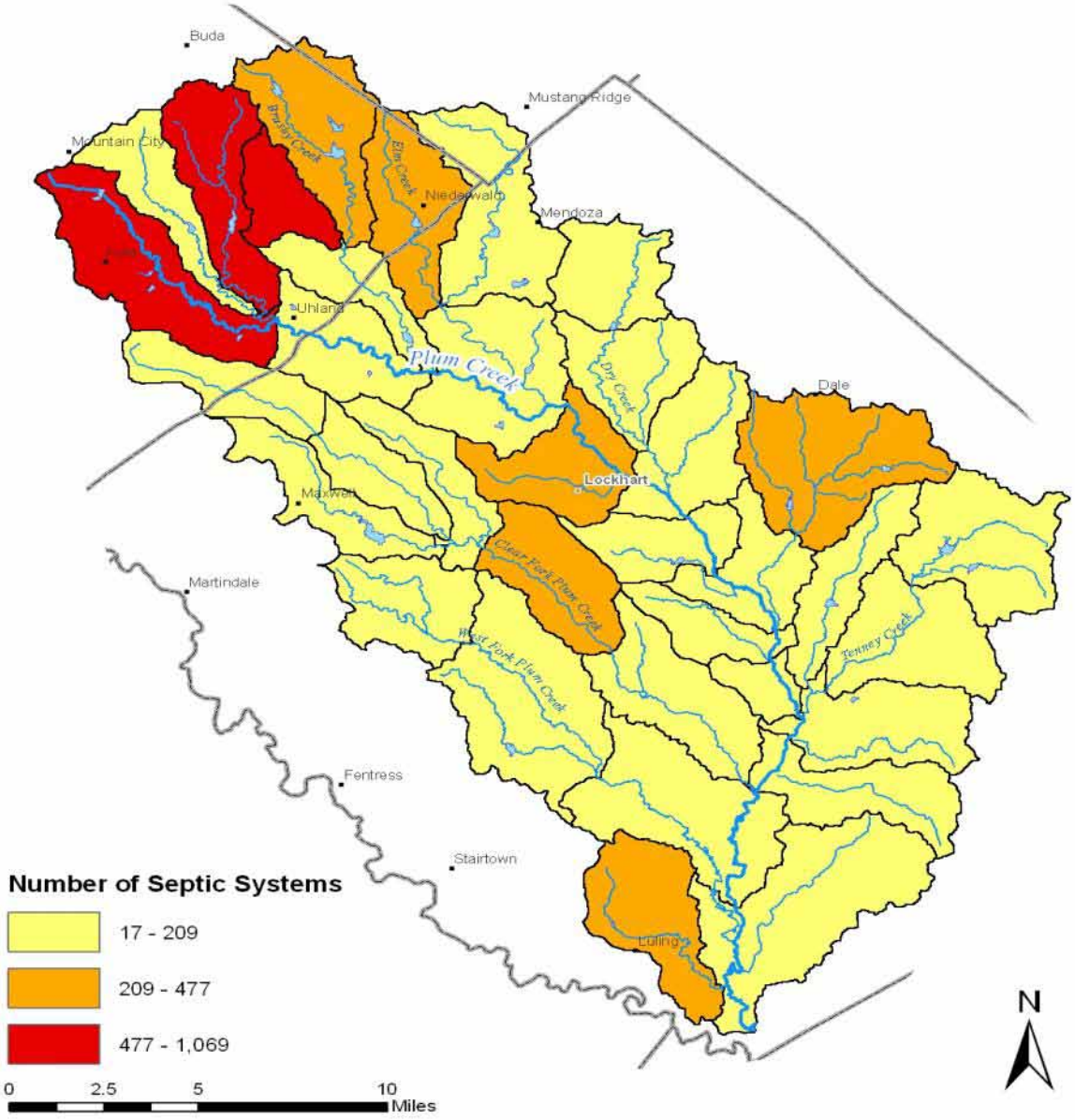
Subwatersheds



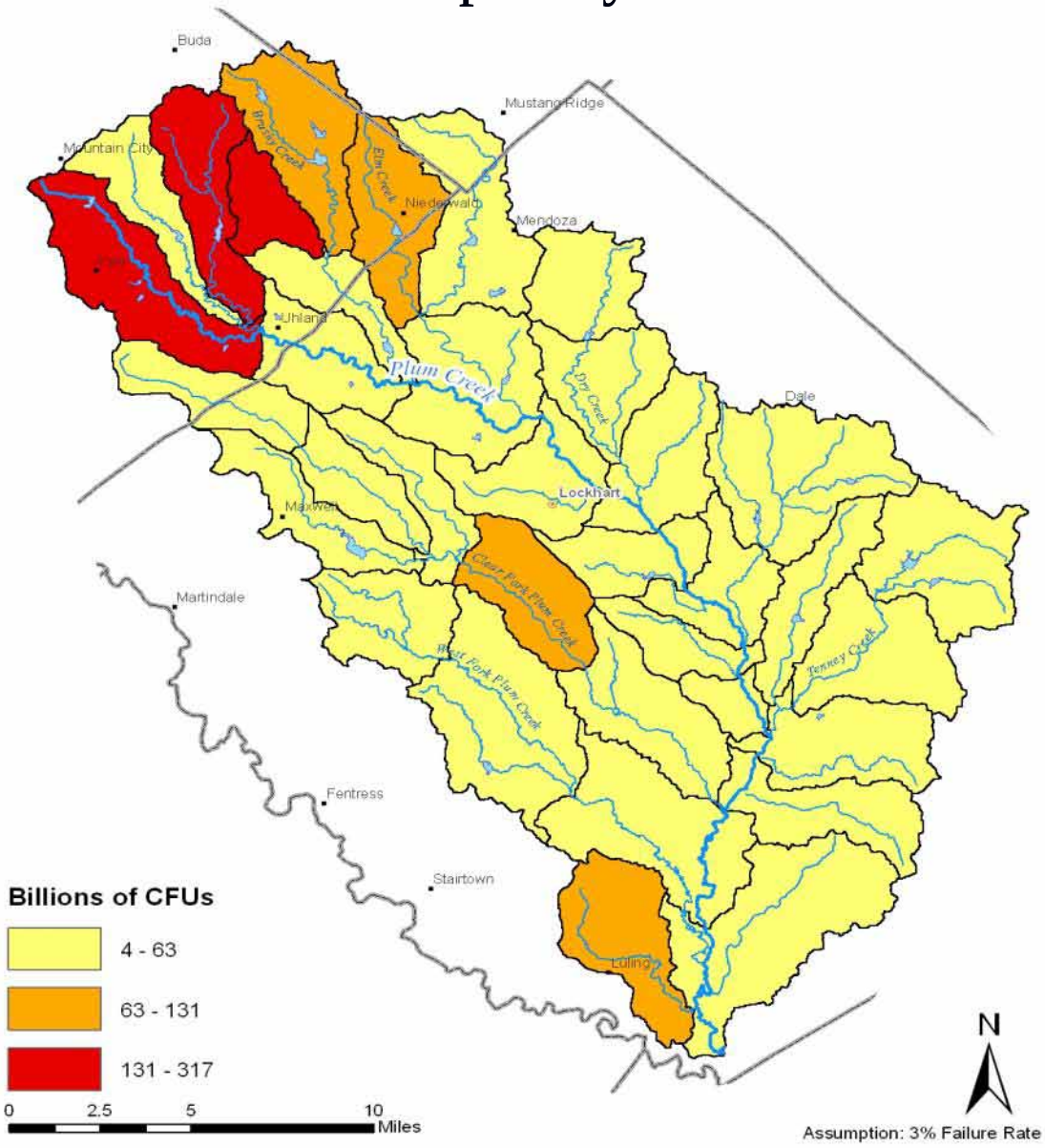
Septic System Distribution



Septic System Use

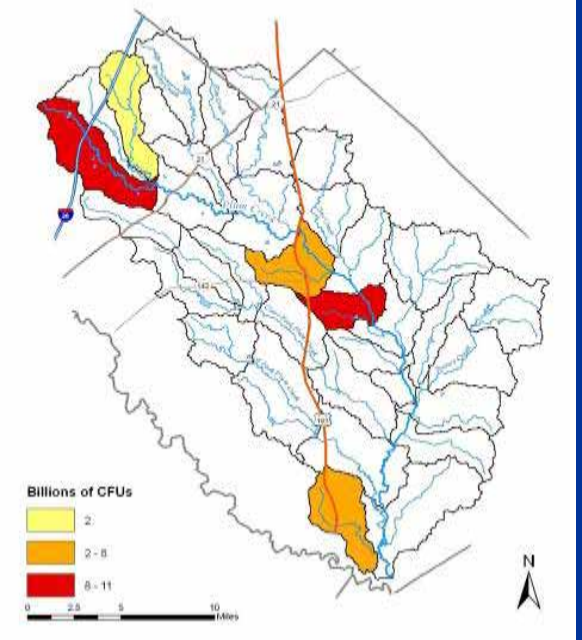


Average Daily Potential E. coli Load from Septic Systems

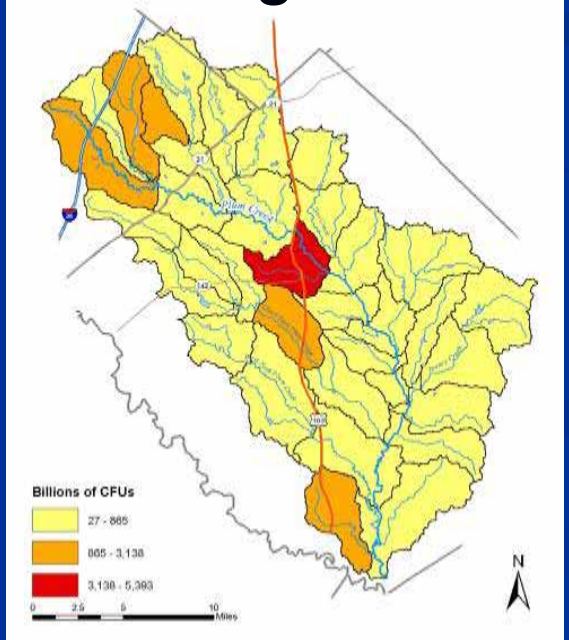


Average Daily Potential *E. coli* Load

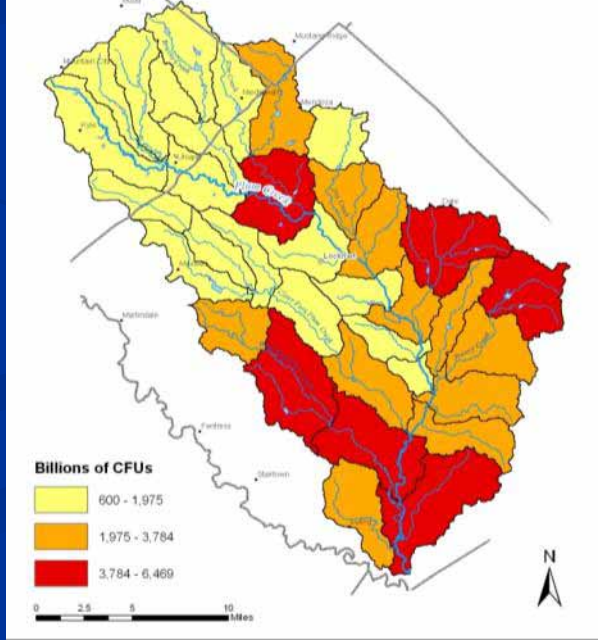
WWTPs



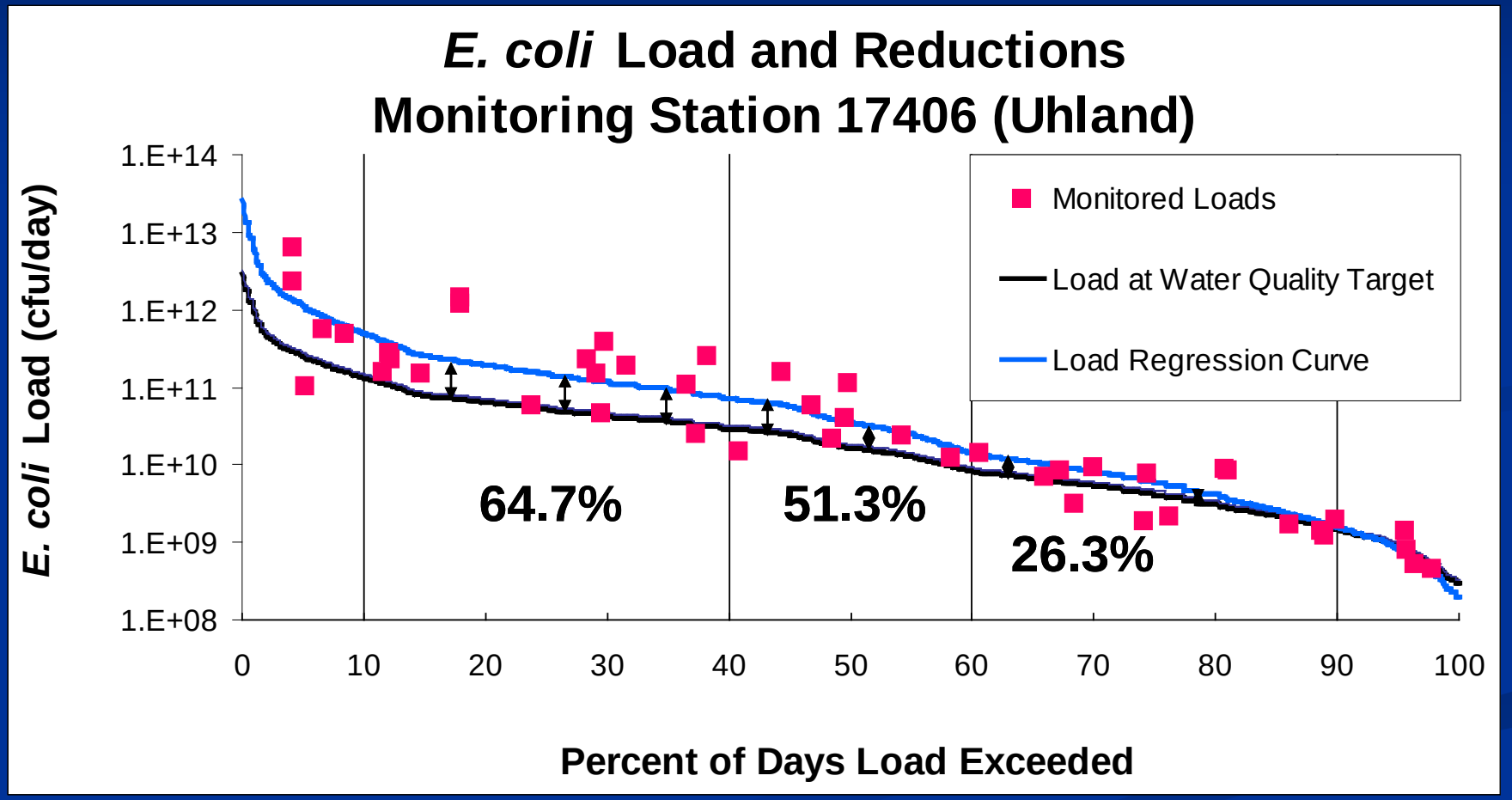
Dogs

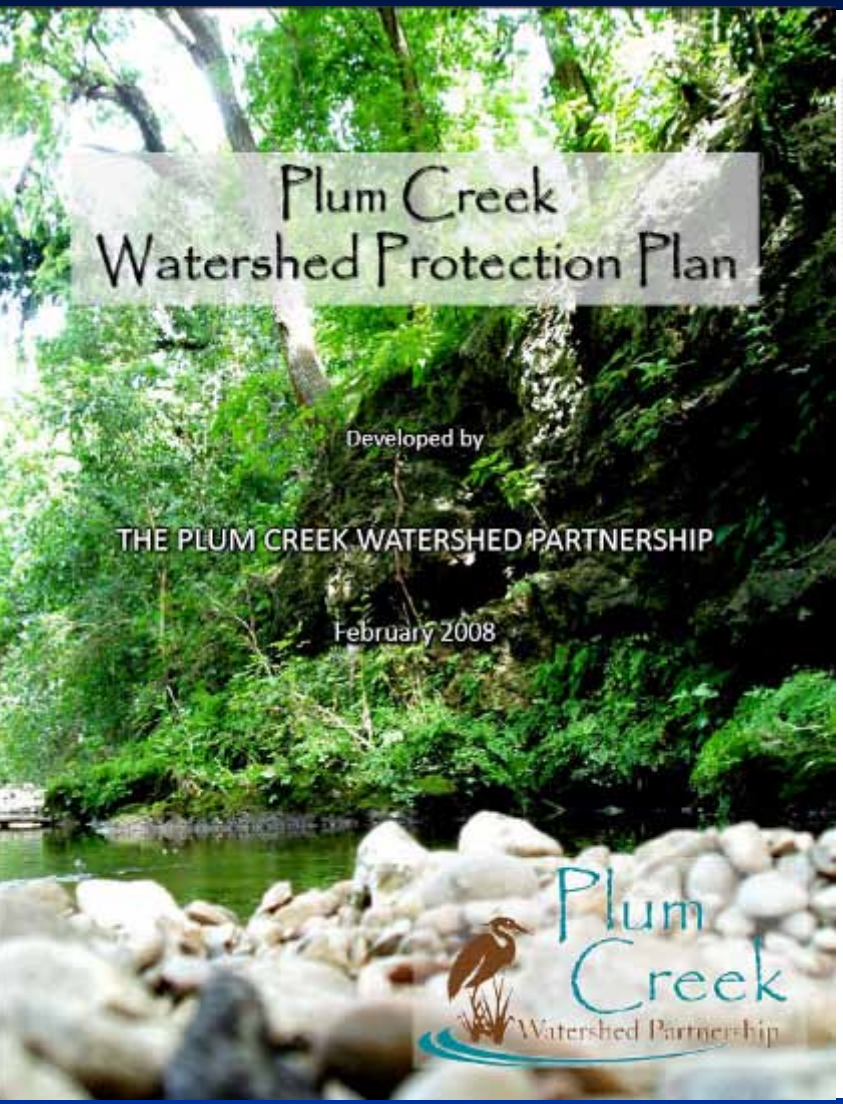


Cattle



Bacteria LDC - Uhland





pcwp

plum creek watershed partnership

- HOME
- CONTACT
- PROJECT OVERVIEW
- MEETINGS
- WATER QUALITY
- NEWSLETTER
- PUBLICATIONS
- WATERSHED PROTECTION PLAN
- LINKS
- PARTNERS
- FORUM

watershed protection plan

Download the Entire Draft of Plum Creek Watershed Protection Plan

Updated 11/29/2007

Microsoft Word Document (54.7 MB)
Portable Document Format (16.5 MB)

For dial-up users, download sections of the draft in separate PDFs, each under 1MB.

Table of Contents, Introduction and Background (710 KB)
Water Quality and Watershed Partnership (877 KB)
Methods of Analysis (345 KB)
Estimate of Pollutant Loads and Required Load Reductions (529 KB)
Pollutant Sources A (730 KB)
Pollutant Sources B (829 KB)
Management Measures (243 KB)
Urban Management Measures (244 KB)
Wastewater Management Measures (72 KB)
Agricultural Management Measures (140 KB)
Wildlife and Feral Hog Management Measures (45 KB)
Outreach and Education (686 KB)
Measures of Success (254 KB)
Implementation Program (349 KB)
Appendix A - D (146 KB)
Appendix E - F (1051 KB)
Appendix G - I and References (881 KB)

TSSWCB

Texas Cooperative EXTENSION

City Council and County Commissioners Court Meetings

- Project Updates
- Discussion of Proposed Management Measures
- Answer any Questions
- Requested a Letter of Support for the Watershed Protection Plan

Status of the Plan

The Nine Elements

- Identification of the causes.
- Estimate of needed load reductions.
- Description of management measures.
- Estimate of technical and financial assistance needed to implement the plan.
- Information/education component to enhance public understanding.
- Schedule for implementation.
- Description of interim, measurable milestones.
- Set of criteria to determine whether load reductions are being achieved.
- Monitoring component to evaluate effectiveness of implementation.

Support Letters

CITY OF Lockhart

(512) 398-3461 • FAX (512) 398-5103
P.O. Box 239 • Lockhart, Texas 78644

Office of the Hays County Judge

ELIZABETH 'LIZ' SUMTER
111 E. San Antonio St., Suite 300 • San Marcos, Texas 78666
Phone: 512/393-2205 • Fax: 512/393-2282 • E-mail: lizsumter@co.hays.tx.us

Hays County Soil and Water Conservation District No. 351
501 Broadway, Suite B - San Marcos, Texas 78666 - Phone (512) 392-4050

H.T. Wright
County Judge
512-398-1808

Lori Rangel-Pompa
County Treasurer
512-398-1800

James E. "Sonny" Rougeou
County Auditor
512-398-1801

Caldwell County Courthouse
110 South Main Street
Lockhart, TX 78644
FAX: 512-398-1828

Tom Bonn
Commissioner, Precinct 1

Charles Bullock
Commissioner, Precinct 2

Neto Madrigal
Commissioner, Precinct 3

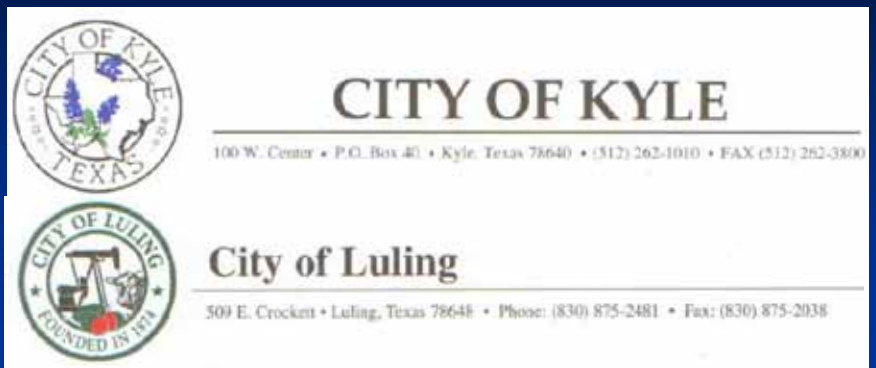
Joe Ivan Roland
Commissioner, Precinct 4

February 27, 2008

Plum Creek Watershed Partnership
C/O Texas AgriLife Extension Service
2474 TAMU, 355A Heep Bldg.
College Station, Texas 77843-2474

Dear Plum Creek Watershed Partnership,

The Plum Creek Watershed Protection Plan represents a significant step



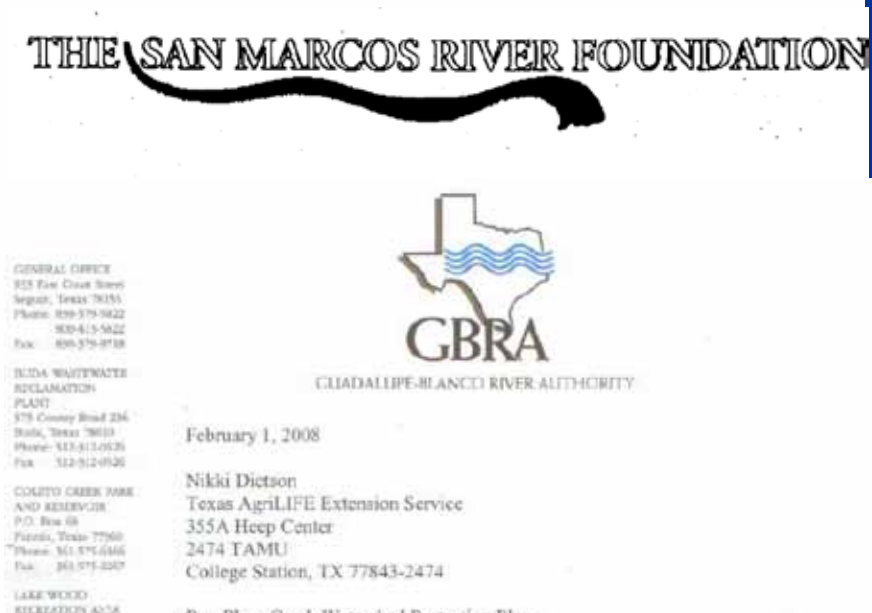
CITY OF KYLE

100 W. Center • P.O. Box 40 • Kyle, Texas 78640 • (512) 262-1010 • FAX (512) 262-3800

City of Luling

509 E. Crockett • Luling, Texas 78648 • Phone: (830) 875-2481 • Fax: (830) 875-2038

Caldwell-Travis Soil and Water Conservation District #304
1400-D Hwy. 20 East - Lockhart, TX 78644 - Phone: (512) 398-2121



THE SAN MARCOS RIVER FOUNDATION

GBRA
GUADALUPE-BLANCO RIVER AUTHORITY

February 1, 2008

Nikki Dictson
Texas AgriLIFE Extension Service
355A Heep Center
2474 TAMU
College Station, TX 77843-2474

Through These Partnerships the Plan was Completed!

- January 2008 concluded the comment period
- February 19, 2008 the Steering Committee signed and adopted the Plum Creek Watershed Protection Plan
- Began efforts to acquire funding for implementation projects

Implementation Effort and Funding

- $440,503 Watershed Plan Development (TWDB)
- $150,000 Watershed Outreach and Education (TCEQ)
- $109,000 Water Quality Monitoring (TSSWCB)
- $255,423 Kyle Urban Implementation (TCEQ)
- $275,000 Lockhart Urban Implementation (TCEQ)
- $205,000 Luling Urban Implementation (TCEQ)
- $996,079 Implementing Agricultural Nonpoint Source Components of the Plum Creek Watershed Protection Plan (TSSWCB)
- Total: $2,431,000

Draft Outline of Geronimo and Alligator Creeks Watershed Protection Plan

Ward Ling

Texas AgriLife Extension Service

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Watershed Characterization Data: Water Quality and Land Use

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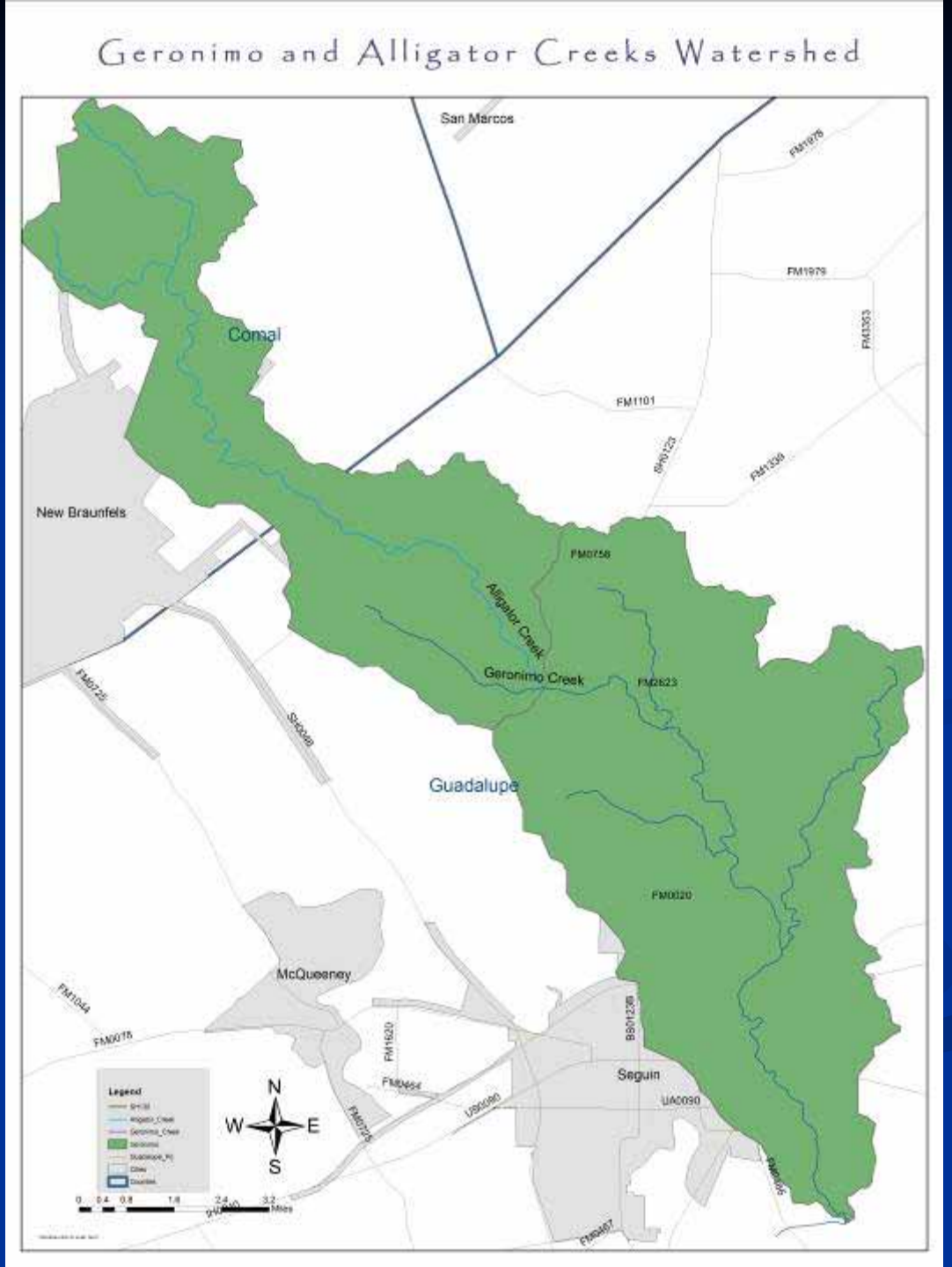
- General Map with Streams, County Lines and City Limits

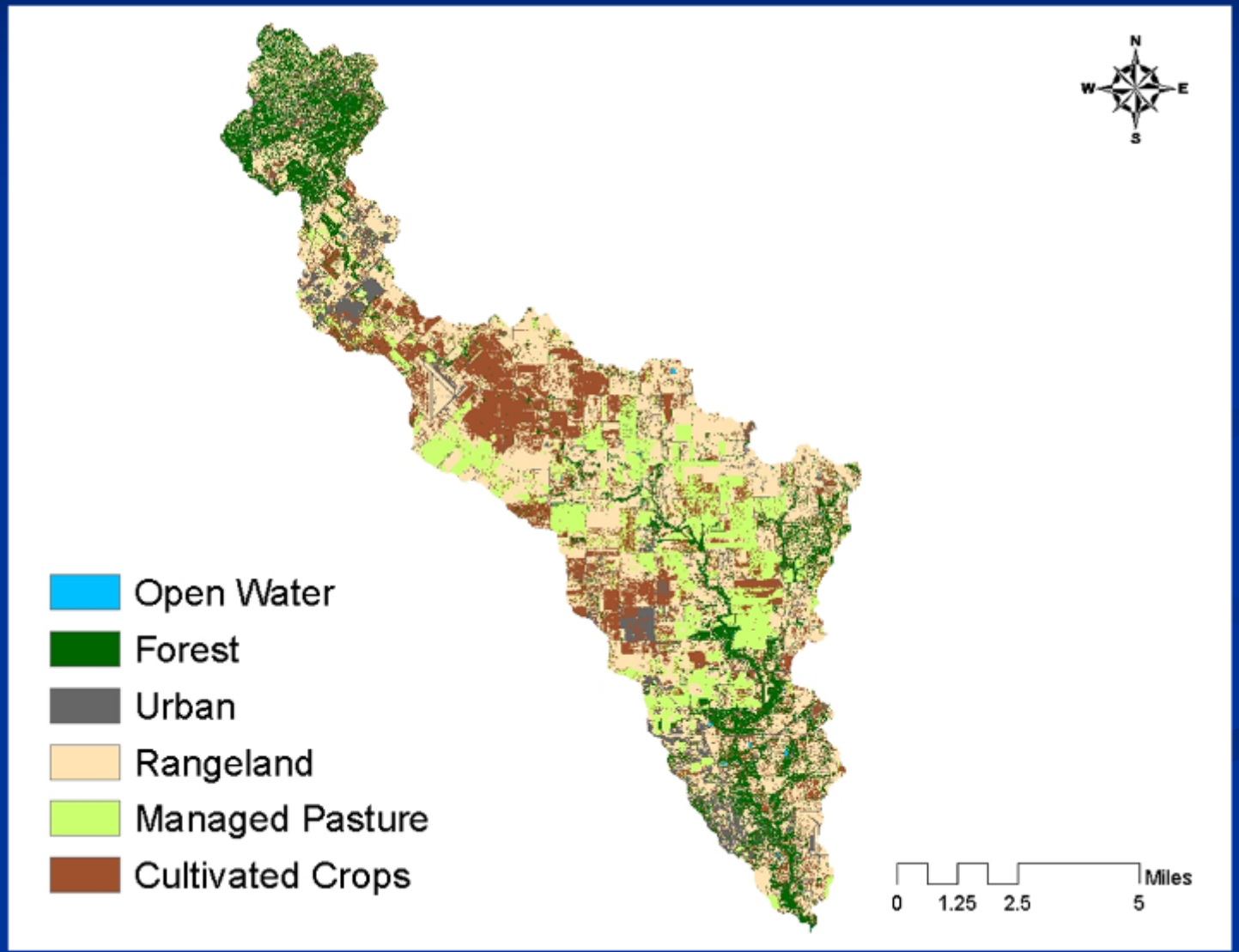


Watershed Characteristics

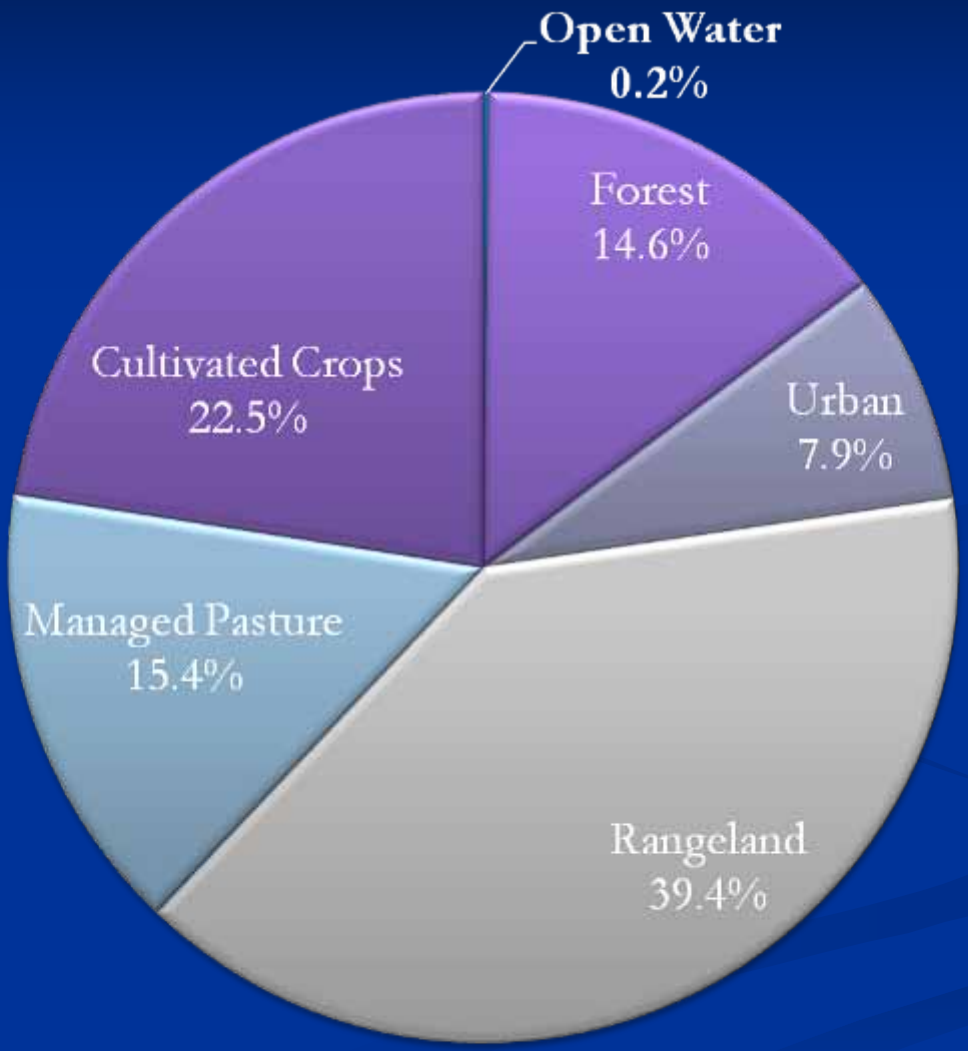
- Watershed: 44,152 acres (69 square miles)
- Climate:
  - Average rainfall – 29 in / yr
  - Average temp – Jan 35^{o} July 95^{o}
- Tributary of the Guadalupe River

Land Use Classification

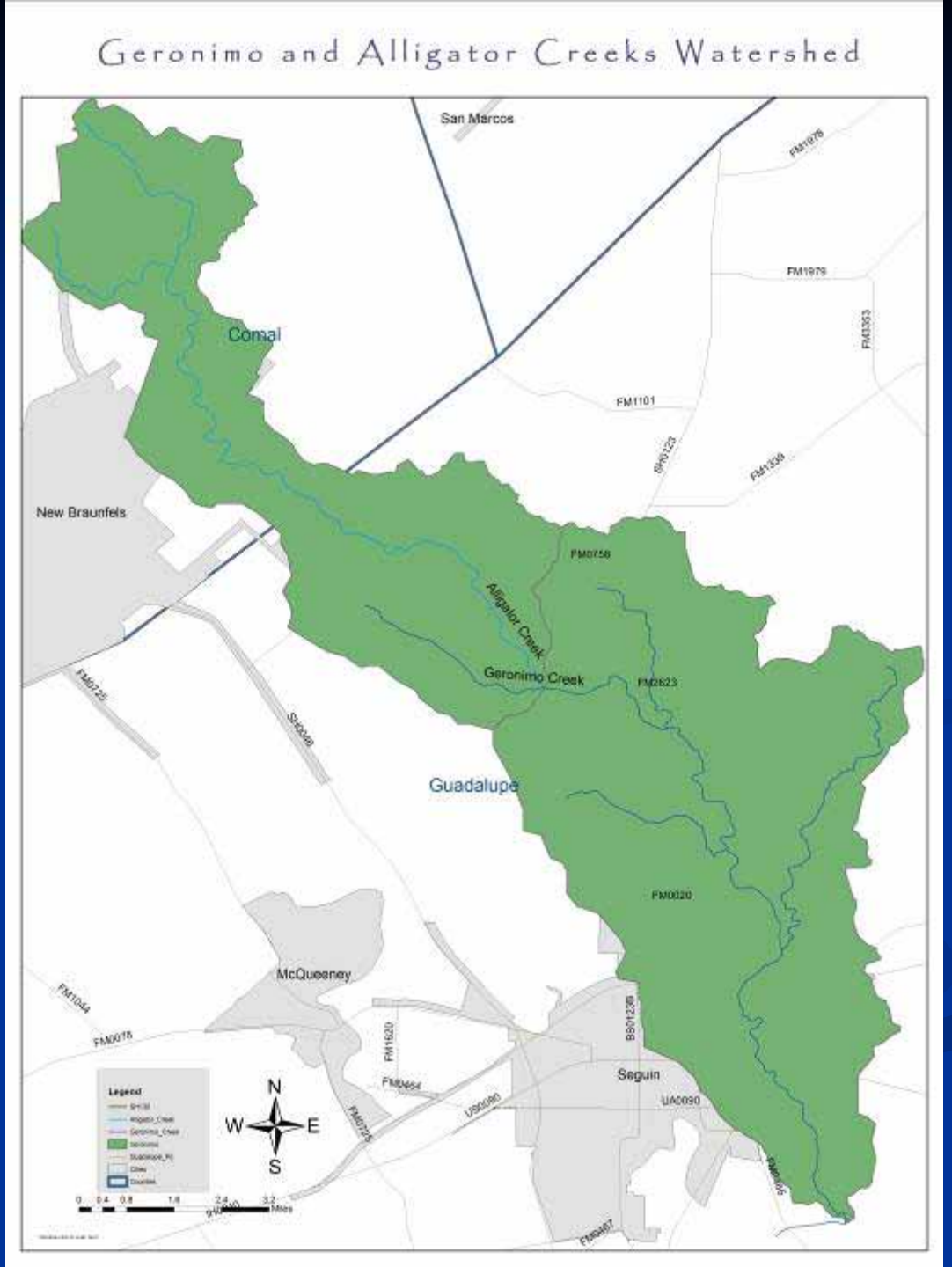
Land Use Land Cover in the Watershed



Land Use Percentages

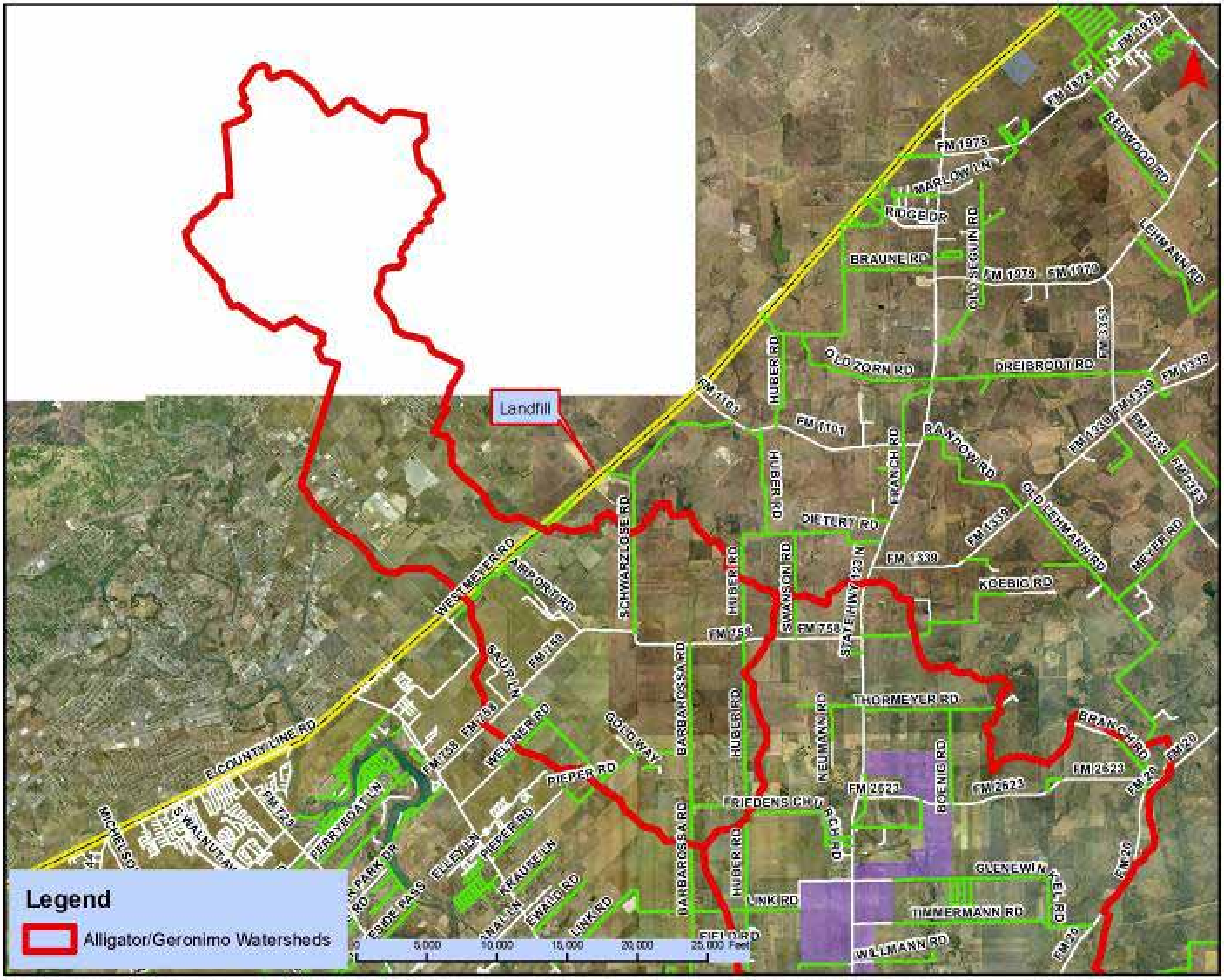


- Google Earth Flyover Tour of the watershed



Landfill

- n

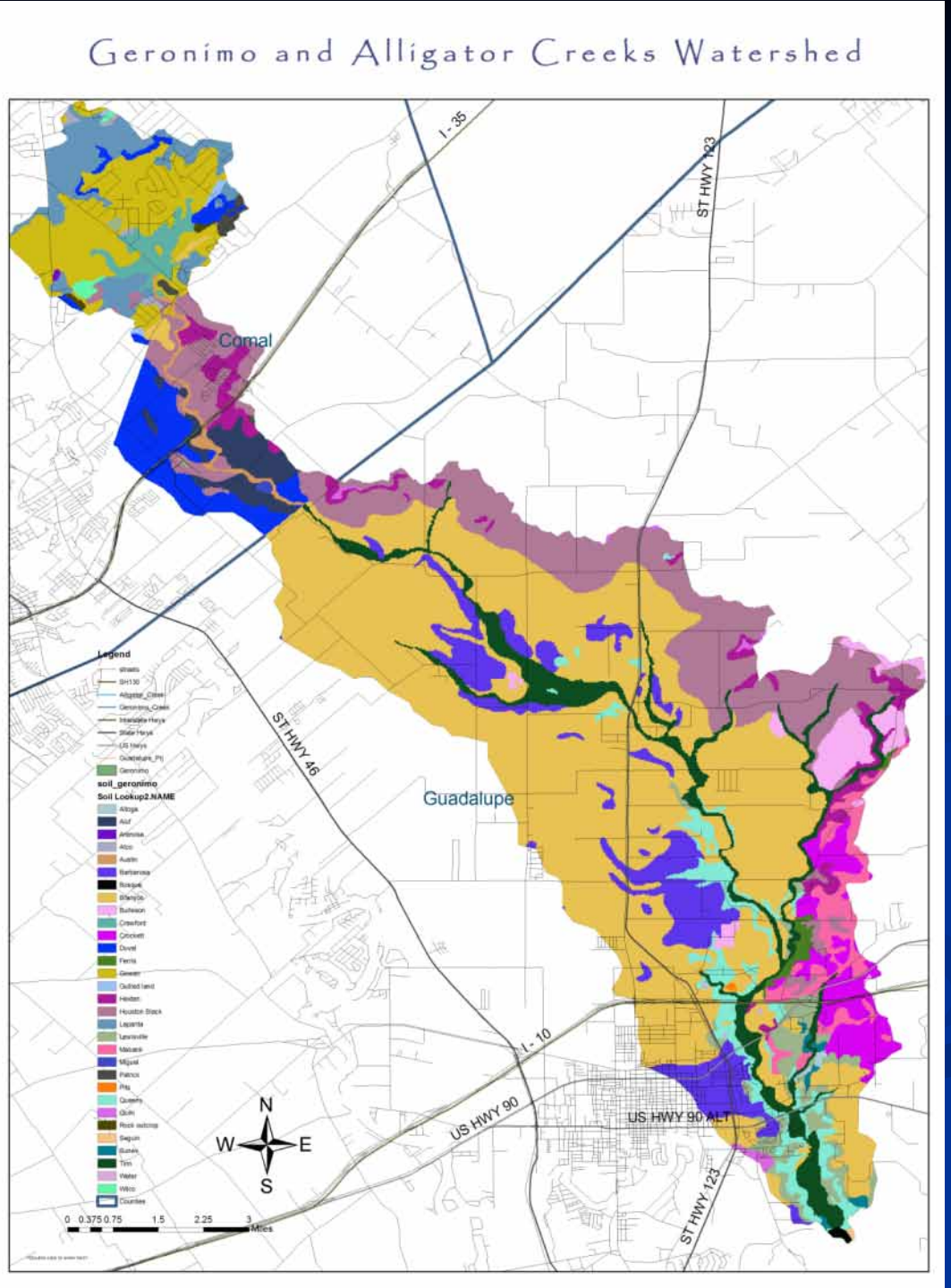


Landfill
Legend
Alligator/Geronimo Watersheds
0
5,000
10,000
15,000
20,000
25,000 Feet
FM 1978
MARLOW LN
RIDGE DR
BRAUNE RD
OLD SEGUIN RD
FM 1979
REDWOOD RD
LEHMANN RD
FM 3353
DREIBRODT RD
OLD ZORN RD
HUBER RD
FM 1101
FM 1339
FM 3353
FRANCH RD
RANDOW RD
OLD LEHMANN RD
MEYER RD
DIETERT RD
KOEBIG RD
SCHWARZLOSE RD
WESTMEYER RD
AIRPORT RD
SWANSON RD
STATE HWY 123 N
FM 758
SAUR LN
BARBAROSSA RD
THORMEYER RD
NEUMANN RD
GOLDWAY
PIEPER RD
FM 2623
BOENIG RD
BRANCH RD
FM 20
FRIEDENS CHURCH RD
E COUNTY LINE RD
FM 725
PERRYBOAT LN
GLENEWINKEL RD
TIMMERMANN RD
LINK RD
WELLMANN RD
FIELD RD
KRAUSE LN
EWALD RD

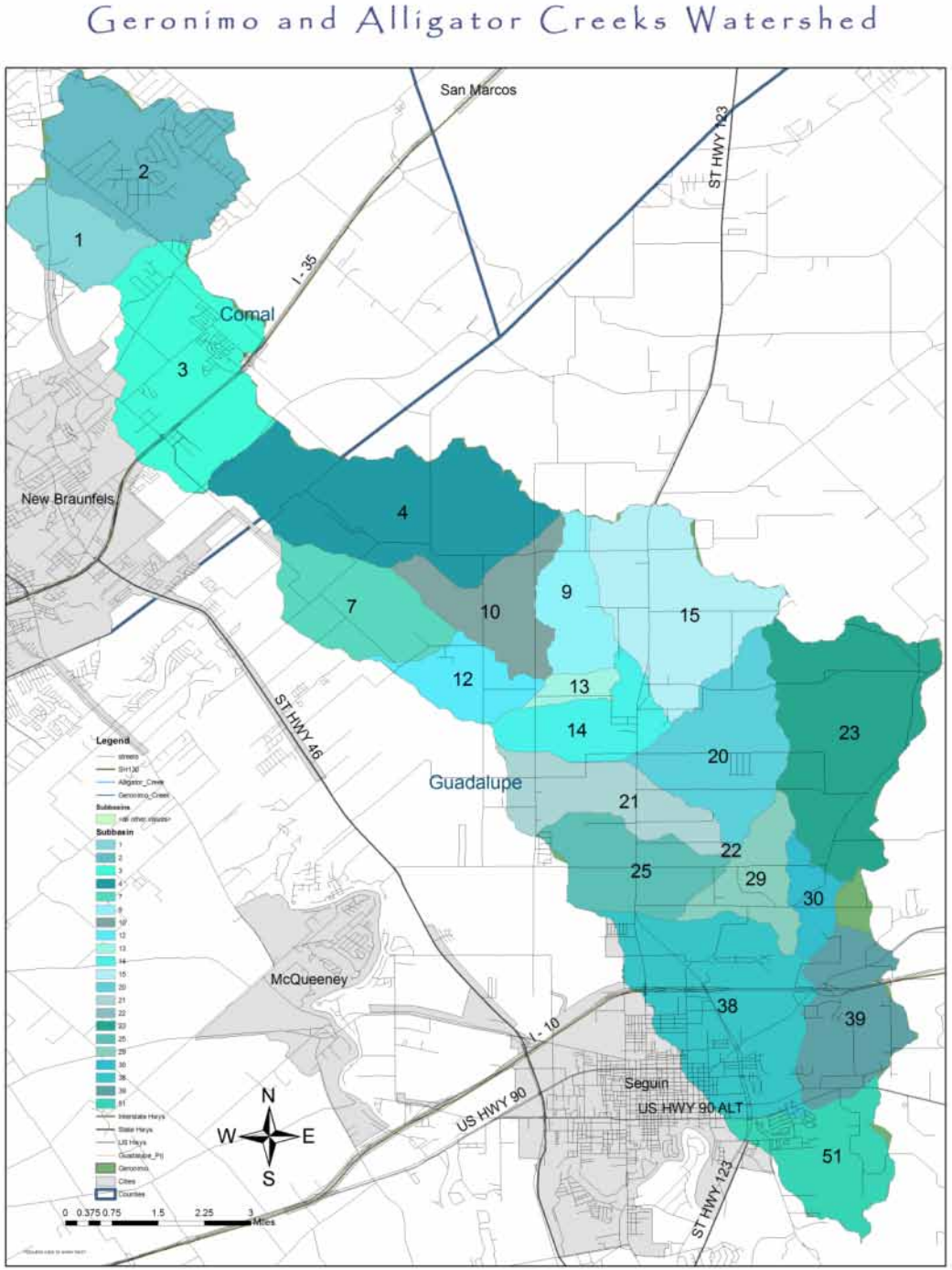
Landfill


FM 1101
SCHWARZLOSE RD
KOHLENBERG RD
Landfill
WEST MEYER RD
WEST MEYER RD
SCHWARZLOSE RD
Legend
Alligator/Geronimo Watersheds
0
1,000
2,000
3,000
4,000
5,000 Feet

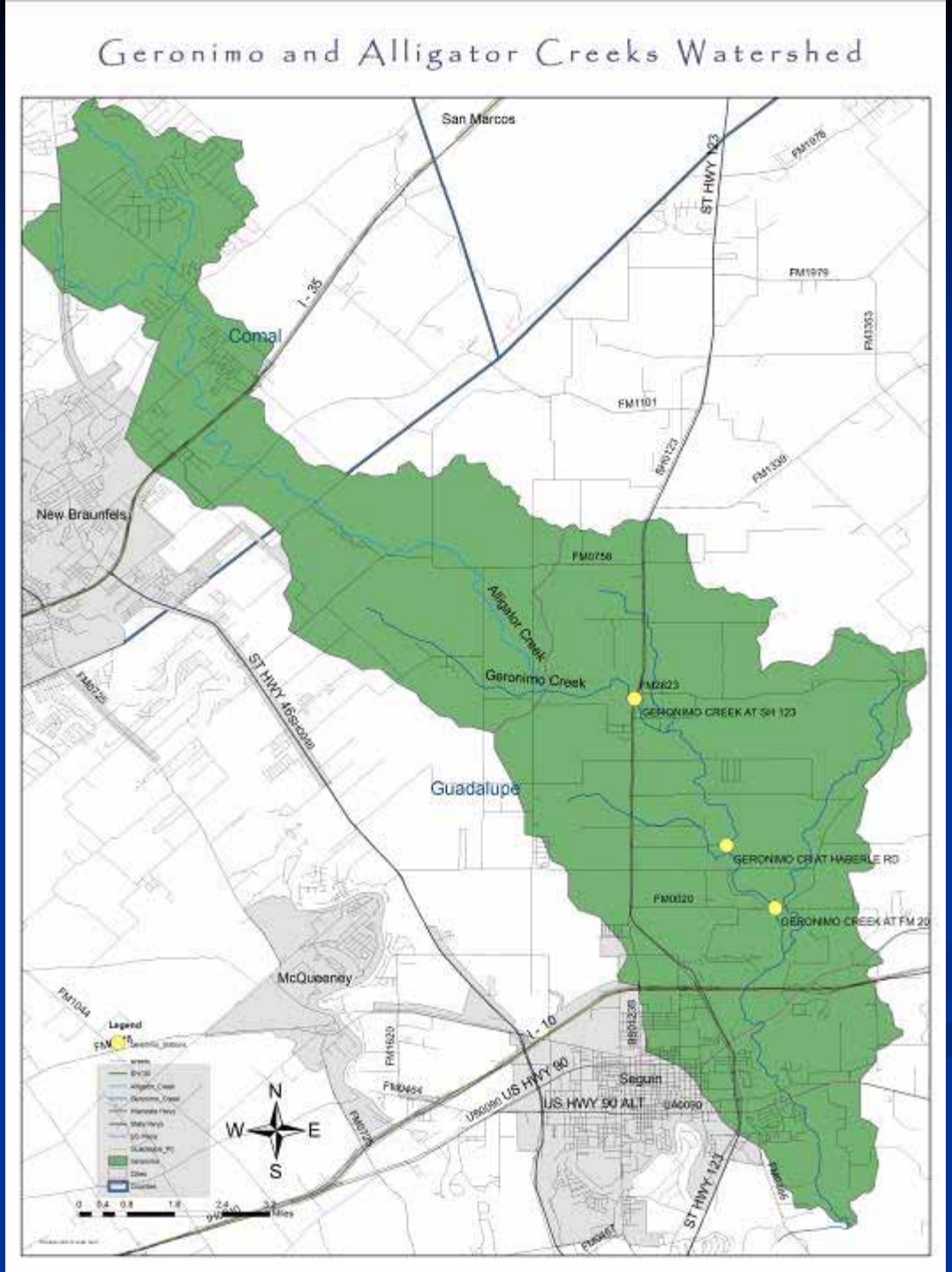
- Watershed Soils



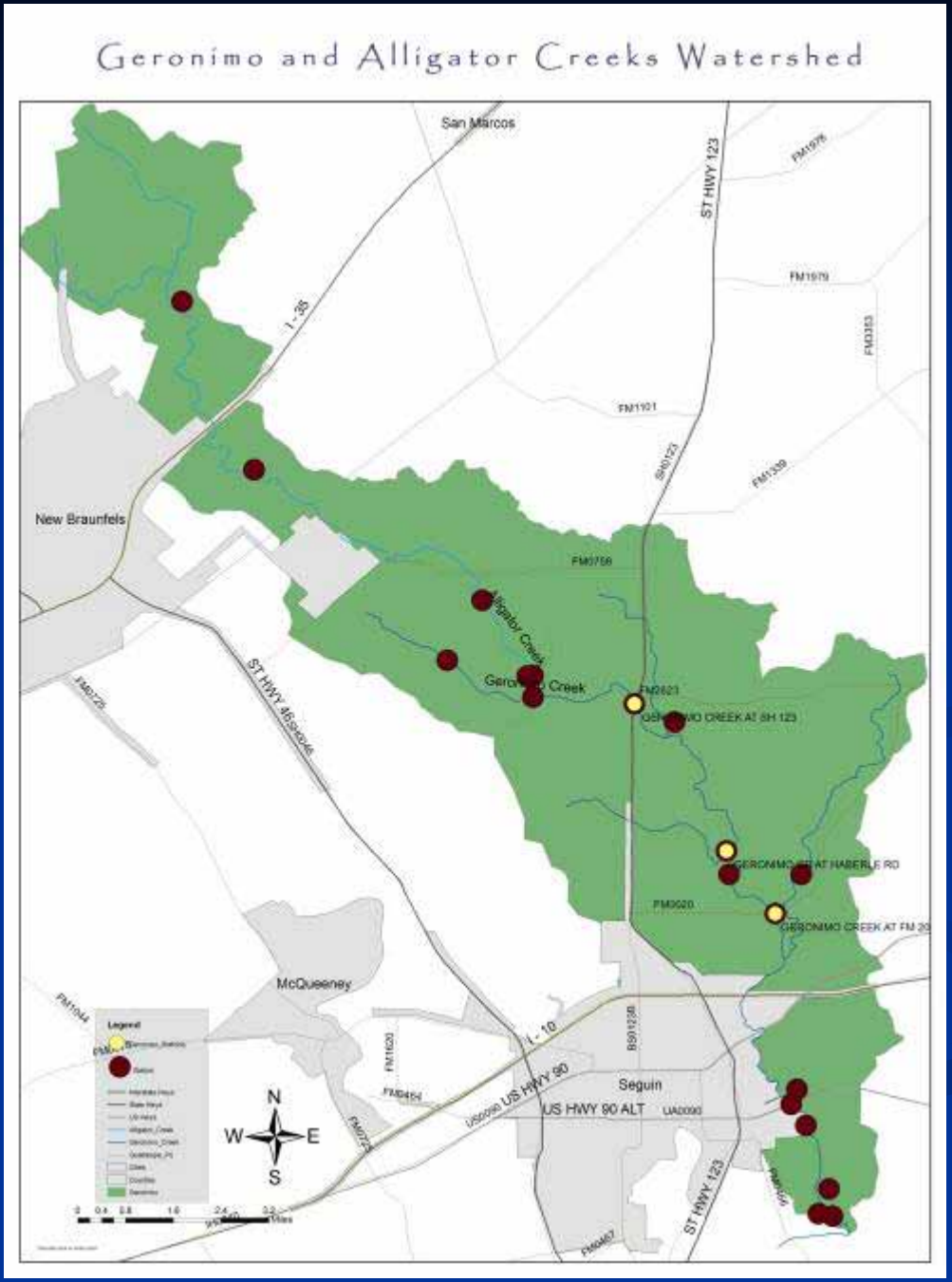
- Watershed Sub-basins



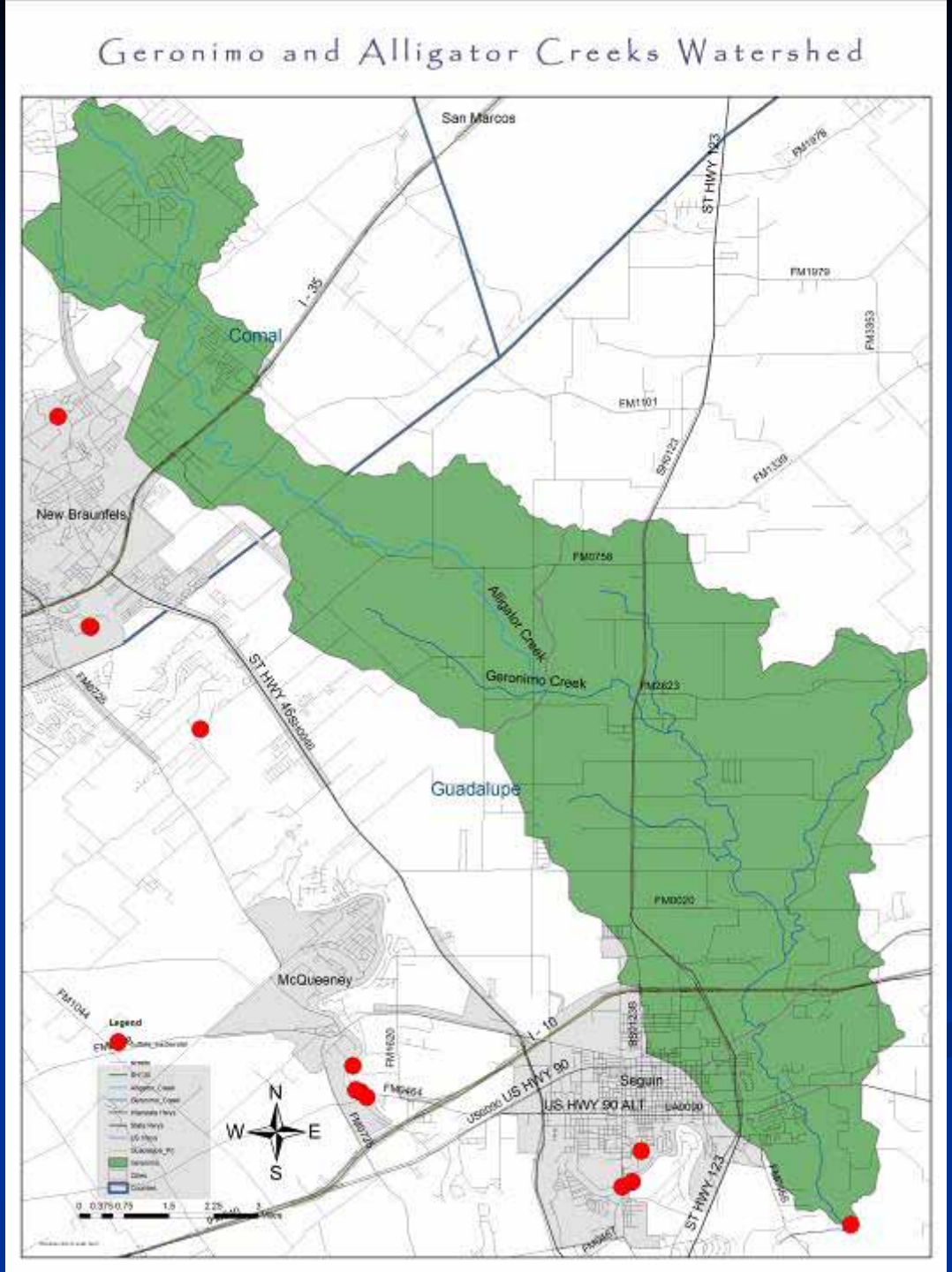
- Historical Water Quality Sites on Geronimo



- Targeted Water Quality Sites on Geronimo



- Wastewater Discharge Sites



Historical Data

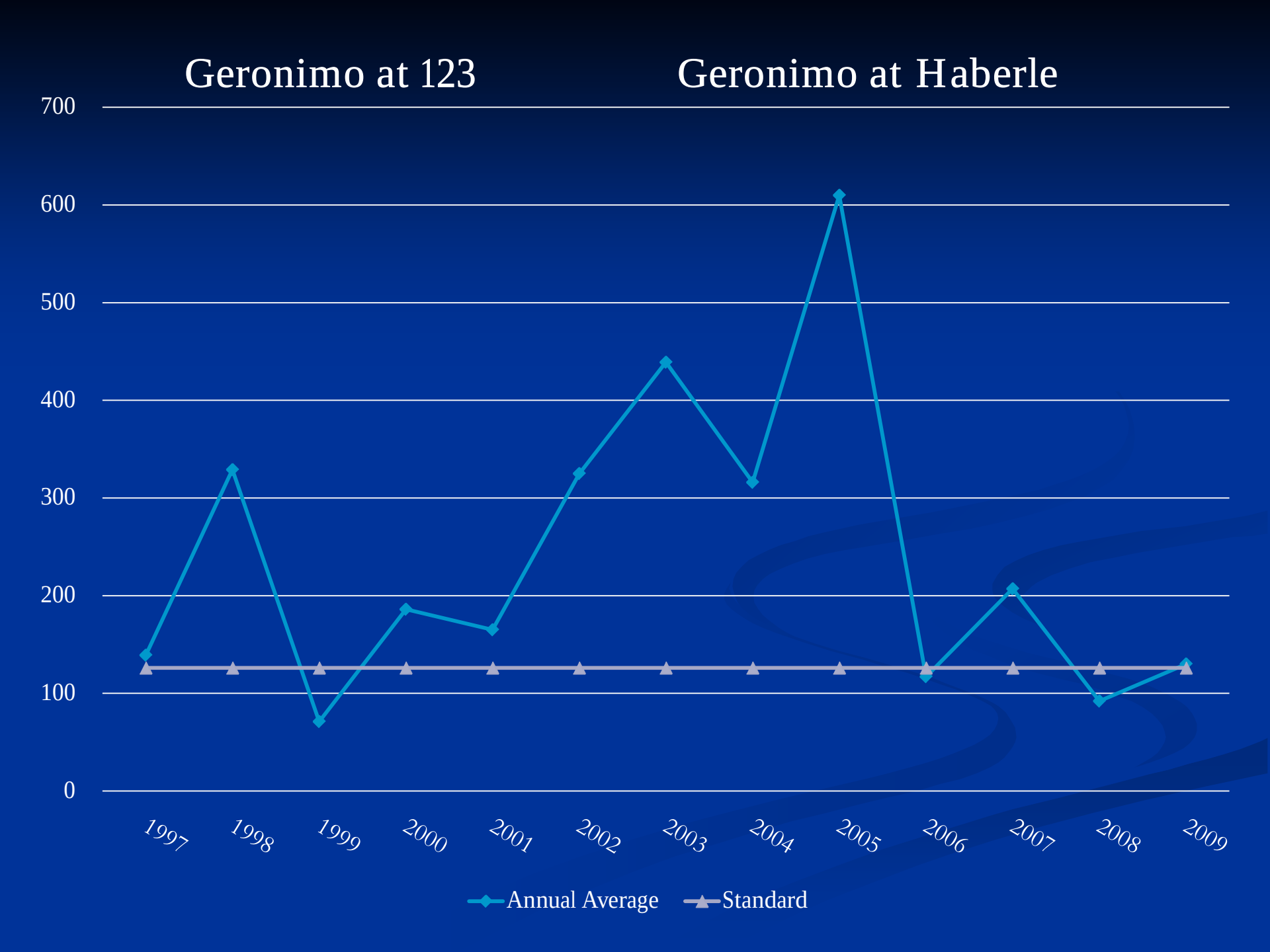
- Geronimo Creek listed as impaired
  - Geronimo at SH 123
    - Sampled monthly 1996-2003
  - Geronimo at Haberle Road
    - Sampled monthly 2003-present

Data Review

GBRA data only

	SH 123	Haberle Road
Flow, cfs	4.9	12.3
Nitrate-nitrogen, mg/L	9.9	14.5
E. Coli, org/100mL	150*	156*

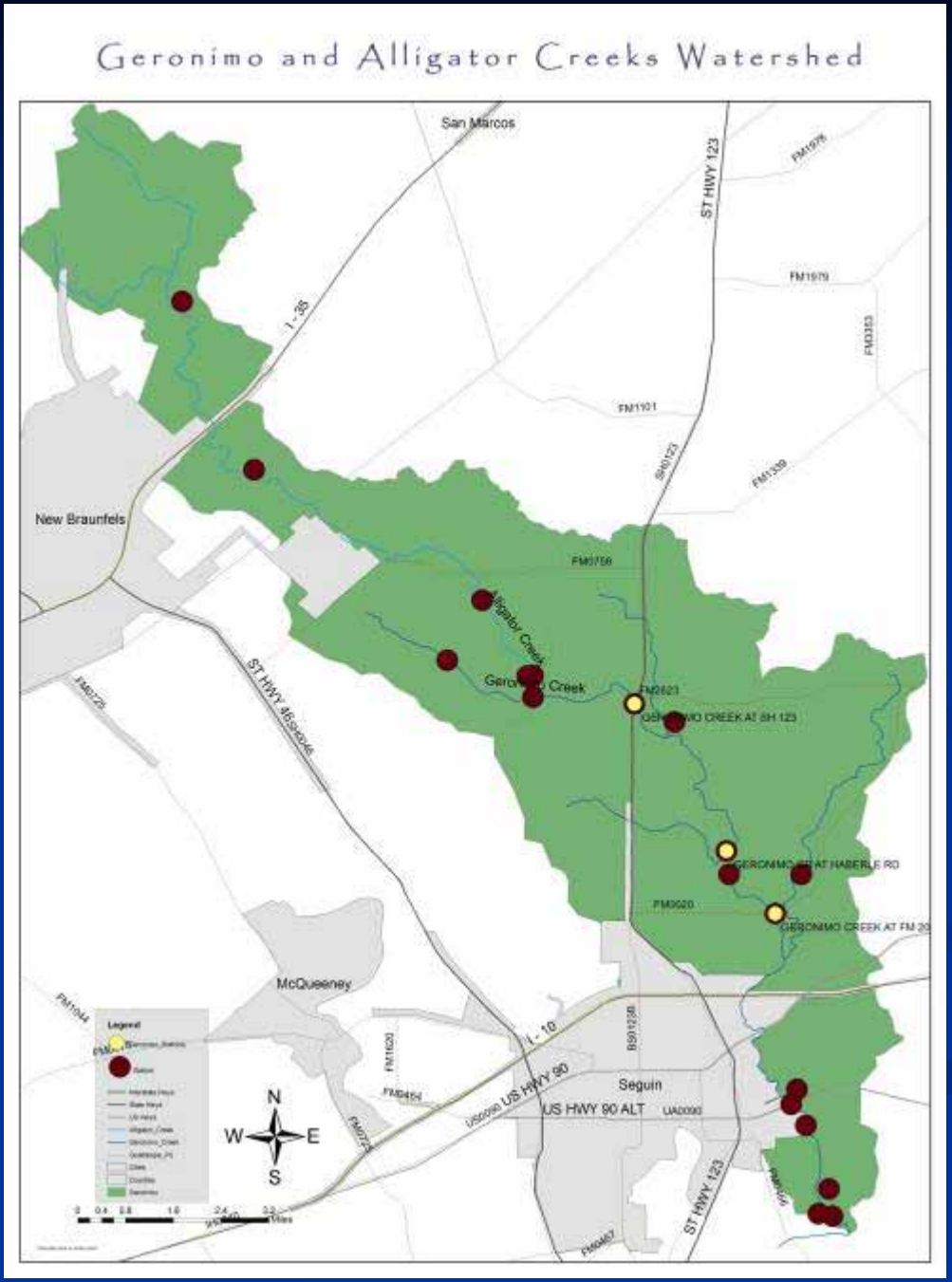
*Water quality standard is 126 org/100mL


Geronimo at 123
Geronimo at Haberle
700
600
500
400
300
200
100
0
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
Annual Average
Standard

New Targeted Data Collection

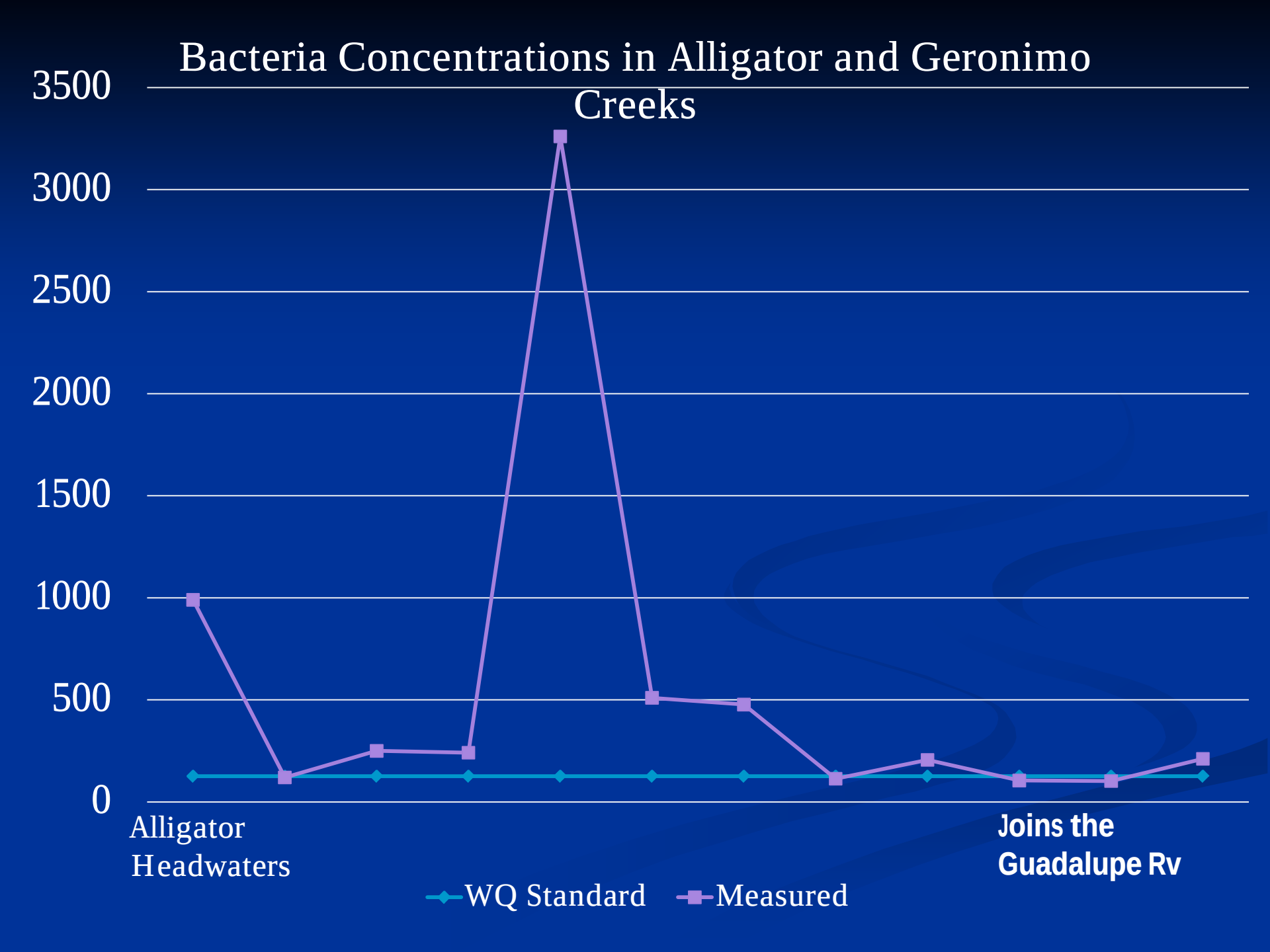
- May ’09 – April ‘10
- Routine monitoring at 7 sites/monthly
- Targeted monitoring at 15 sites quarterly (wet and dry conditions)
- Three groundwater (well water) quarterly
- One wastewater site quarterly

- Targeted Water Quality Sites on Geronimo



What does the most recent bacteria data look like?

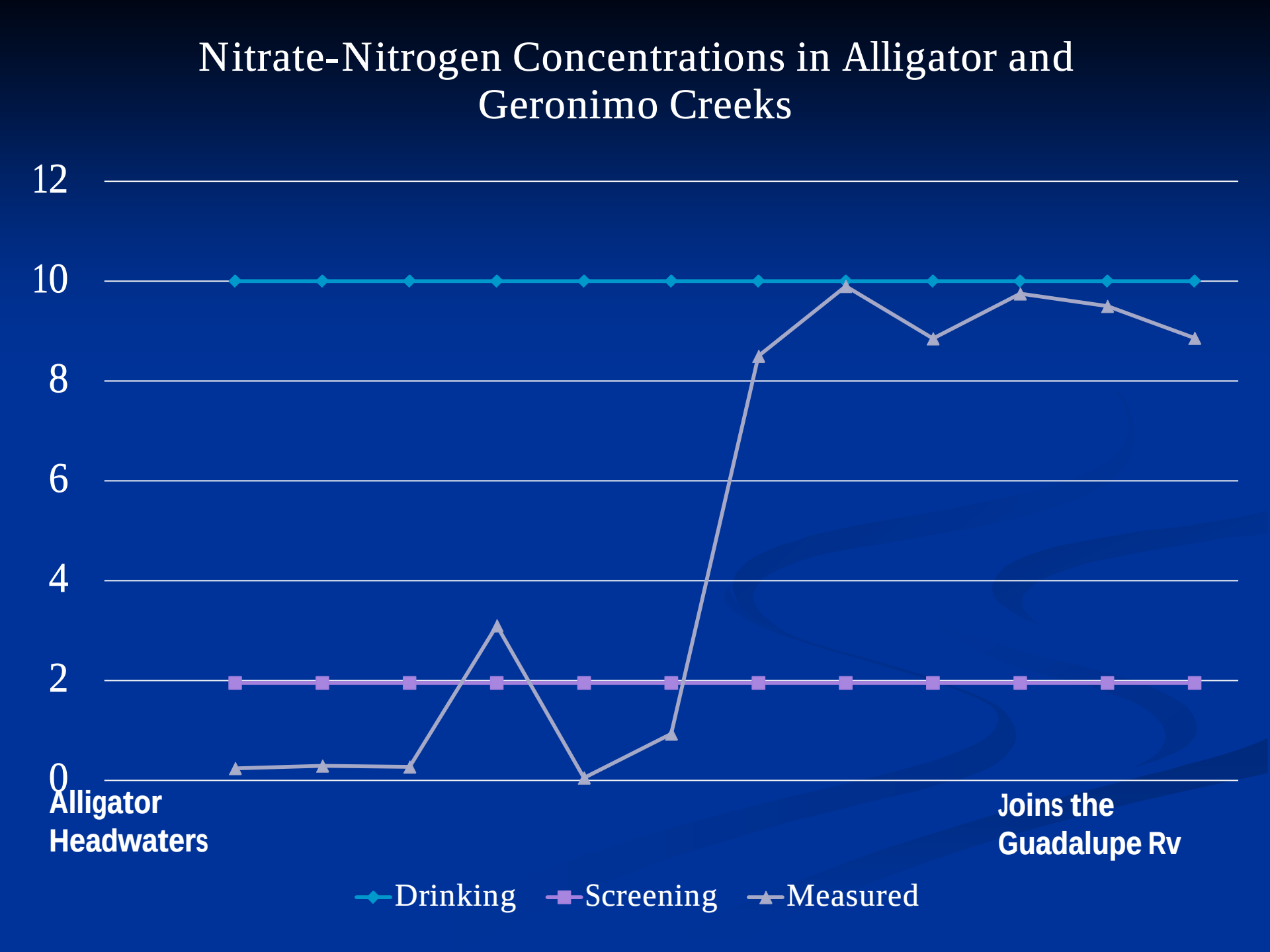
- Data collection was impacted greatly by the drought
- Many sites on Alligator were dry initially, so very few samples collected on the upper end
- Most sites are at or above the water quality standard


Bacteria Concentrations in Alligator and Geronimo Creeks
3500
3000
2500
2000
1500
1000
500
0
Alligator Headwaters
Joins the Guadalupe Rv
WQ Standard
Measured

What does the most recent nitrate-nitrogen data look like?

- Again, data collection impacted by drought
- Many sites on the upper end were dry initially
- Concentrations tend to increase as you move downstream

Nitrate-Nitrogen Concentrations in Alligator and Geronimo Creeks



Water Well Data

- Three water wells are being sampled
- Attempt to explore the connection between surface water and groundwater

Nitrate-Nitrogen Concentrations in 3 Water Wells along Alligator and Geronimo Creeks

Formation of Work Groups

Nikki Dictson

Texas AgriLife Extension Service

Role of Work Groups

- Work groups are an extension of the steering committee and partnership that discuss and work on specific topical areas.
- Work groups make recommendations and develop components of the WPP for their topic.
- Work group members will provide leadership in implementation of practices and thus, are the most appropriate forum for decisions on topics in their area.
- Work groups will meet in alternating months from the Steering Committee Meetings.

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Proposed Work Groups

- Work Groups include:
  - Urban Nonpoint Source
  - Agricultural Nonpoint Source
  - Wastewater Infrastructure (onsite and treatment facilities)
- Outreach and Education will be a component of each work group instead of a separate group.
- Most topics will fall underneath these headings, but if additional issues arise they can be handled by a special topics meeting.

Agricultural Nonpoint Source Work Group

- The purpose of this Work Group is to discuss the specific causes and sources of nonpoint source pollution stemming from general agricultural and silvicultural (forestry) sources.
- This includes cropland, pastureland, rangeland, and forestland. Sources to be discussed include runoff from cropland, livestock, wildlife and feral hogs (invasive species).
- This Work Group will also identify and recommend strategies to reduce and abate pollution from these sources.

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Urban Nonpoint Source Work Group

- The purpose of this Work Group is to discuss the specific causes and sources of nonpoint source pollution stemming from general urban sources.
- This includes residential, commercial, and industrial land uses. Sources to be discussed include runoff from “paved” sources, pets and other non-livestock domestic species.
- Urban growth and development is a topic within the realm of this Work Group. This Work Group will also identify and recommend strategies to reduce and abate pollution from these sources.

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Soil Water
TSSWCB

Wastewater Infrastructure Work Group

- The purpose of this Work Group is to discuss the specific causes and sources of pollution stemming from on-site sewage facilities (OSSFs or septic systems) and wastewater treatment facilities (WWTFs).
- Regionalization of wastewater treatment, the conversion of OSSFs to a centralized WWTF, and repair/replacement of OSSFs are topics within the realm of this Work Group.
- This Work Group will also identify and recommend strategies to reduce and abate pollution from these sources.

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Potential Meeting Dates and Times

Steering Committee Meetings are proposed for the 2nd Tuesday of the month from 6pm – 9pm

- Potential Locations
  - GBRA River Annex
  - Central Texas Technology Center
  - Red Barn near Geronimo
  - New Braunfels Utilities

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Break out into Work Groups

- Work Group Discussions
  - Location, Time, and Date for meetings will be determined by the work group members.
  - Discuss causes and sources for water quality issues
  - Discuss any issues that you would like to make sure we address for this project
  - Discuss who else do we need to try to get to participate in the work groups moving forward

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Next Steps and Questions?

Ward Ling, Debbie Magin, and Nikki Dictson

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Next Steps

March – Work Group Meetings

Begin identifying potential sources and loading estimates in work group meetings

April – Watershed Tour

April – Work Group Meetings

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Website

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Geronimo and Alligator Creeks

Geronimo Creek and its tributary Alligator Creek are located in Comal and Guadalupe Counties. The almost 70-square-mile Geronimo Creek watershed lies within the larger Guadalupe River Basin. The lower portion of the Geronimo Creek watershed is in the extra-territorial jurisdiction (ETJ) of Seguin. The upper portion of the Alligator Creek watershed lies in the ETJ of New Braunfels. Alligator Creek begins on the west side of IH-35 and flows southeast, travelling through a rapidly developing area of the Austin-San Antonio corridor.

As development and population growth continue, the percentage of urban land use will rise and play an increasingly important role in the hydrology and water quality of Geronimo Creek and its tributaries.

Based on routine water quality sampling of Geronimo Creek, the stream is impaired by elevated bacteria concentrations and has nutrient enrichment concerns for nitrate-nitrogen. High bacteria concentrations do not support contact recreation use and high levels of nitrogen can cause algal blooms and excessive growth of aquatic vegetation.

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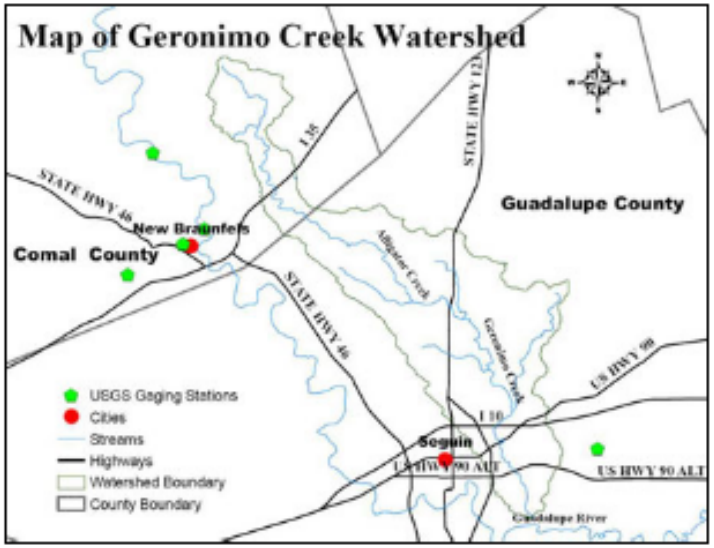

Websites

Geronimo and Alligator Creeks Watershed Partnership

- http://geronimocreek.org/

Guadalupe-Blanco River Authority

- http://www.gbra.org/

TSSWCB Geronimo Creek Watershed

- http://www.tsswcb.state.tx.us/watersheds#geronimocreek

Contact Information

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