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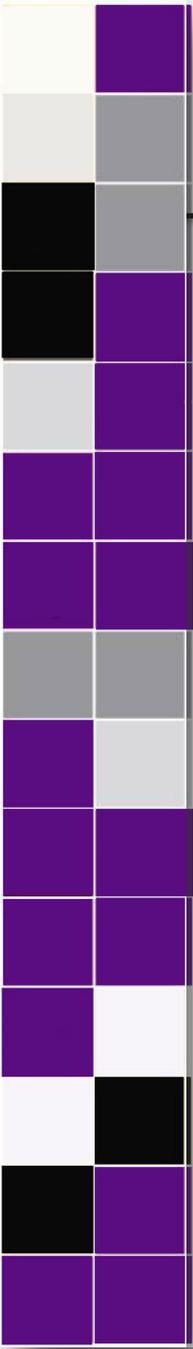
Red River Basin

Recreational Use Attainability Analysis Projects

Texas Institute for Applied Environmental Research
Stephenville, Texas

March 2014





Red River Basin Creeks Overview

- Summary of FY '12 Red River Basin RUAA Findings
 - Buffalo Creek
 - Paradise Creek
 - Sweetwater Creek
- Summary of FY '14 Red River Basin RUAA Projects
 - Smith Creek
 - Bois d'Ark Creek
 - Choctaw Creek
 - Iron Ore Creek
 - Mud Creek



Project Partners

- Texas State Soil and Water Conservation Board (TSSWCB)
- Texas Institute for Applied Environmental Research (TIAER)



TSSWCB

- Provide state oversight
- Management and coordination of project activities
 - Project partners
 - Texas Commission on Environmental Quality (TCEQ)
- Provide project funding



TIAER

- Project administration
- Develop & maintain stakeholder relations
- Perform RUAA survey activities
- GIS inventory
- Facilitate meetings
- Develop final technical reports



Why We Are Here

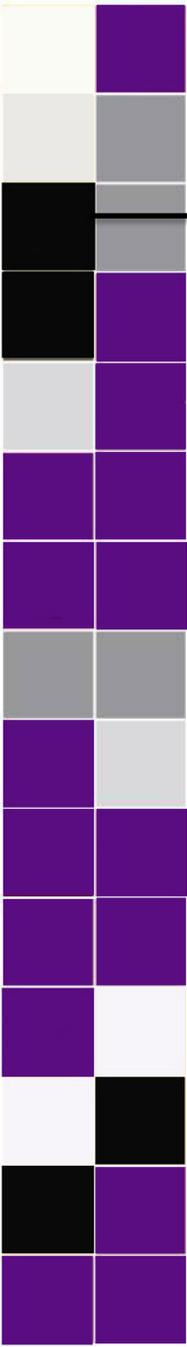
- EPA – Clean Water Act
 - November, 1972
- TCEQ – Texas Integrated Water Quality Report
 - Texas 303 (d) List



Bacteria Impairment

- All of the creeks being assessed currently do not meet the water quality standard for **primary contact recreation**
 - Due to elevated levels of bacteria, *E. coli*.
 - Requires action to meet the standards that are set by the State of Texas and EPA.
 - Geometric mean should not exceed 126 cfu/ 100ml

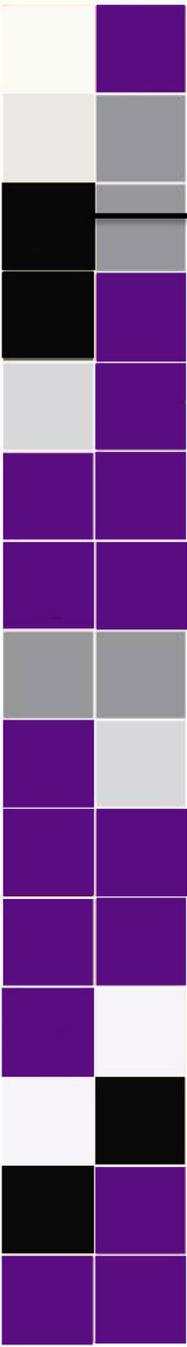




RUAA

- One method for removing Creeks from the impaired list for bacteria
 - Assess recreational use to determine if standard is appropriate
 - Recreational use attainability analysis (RUAA)





Purpose of RUAA

- To determine if primary contact recreation is occurring, or if another recreational use category may be more appropriate.



RUAA Use Categories

- **Primary Contact Recreation** – 126 cfu/100mL
 - Activities that are presumed to involve a significant risk of ingestion of water
 - (e.g. wading by children, swimming, water skiing, diving, tubing, surfing, and the following white water activities: kayaking, canoeing, and rafting).
- **Secondary Contact Recreation 1** – 630 cfu/100mL
 - Activities that commonly occur but have limited body contact incidental to shoreline activity
 - Wading by adults, fishing, canoeing
 - Activities are presumed to pose a less significant risk of water ingestion than primary contact recreation but more than secondary contact recreation 2.



RUAA Use Categories

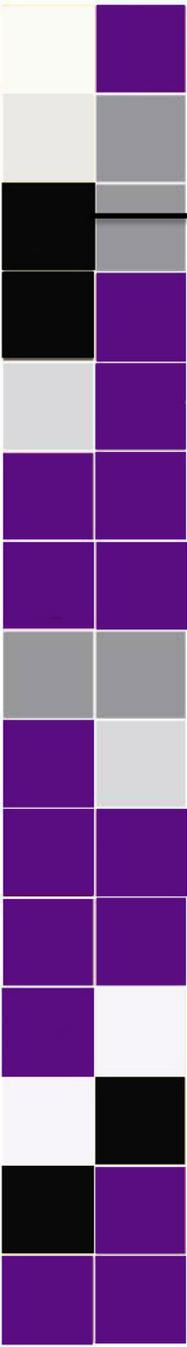
- **Secondary Contact Recreation 2** – 1030 cfu/100 mL
 - These activities occur less frequently than secondary contact recreation 1 due to physical characteristics of the water body or limited public access.
- **Noncontact Recreation** – 2060 cfu / 100 mL
 - Activities that do not involve a significant risk of water ingestion, such as those with limited body contact incidental to shoreline activity, including birding, hiking, and biking.



RUAA Components

- **Historical Information Review**- to document past recreational uses
- **Interviews**- to obtain feedback on current and past recreational uses from stakeholders
- **Field Surveys**- to document current stream conditions and uses



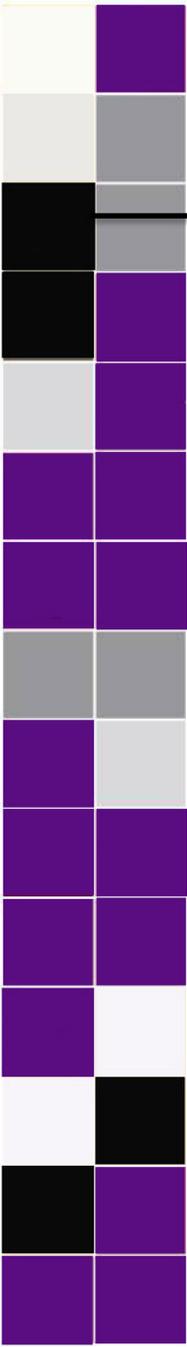


RUAA Components

Historical Information Review

- November 28, 1975 – Present
 - Any documentation of recreational use of Bois D' Arc Creek
 - Newspaper clippings or other publications
 - Historical or Museum Records
 - Personal pictures or letters





RUAA Components

Stakeholder Interviews

- Document use of the creeks from individuals
 - Conducted during field surveys (if individuals are encountered)
 - Streamside landowners
 - Local residents
 - Other users
 - Interviews can be anonymous and conducted by phone, USPS mail, or email.



RUAA Components

Field Surveys

- Goal: 3 sites for every 5 miles
 - At each site:
 - 300 meter reach traversed
 - Document
 - Stream characteristics that may promote or hinder recreational use
 - Observations of direct use or signs of recreational use
 - Interviews with individuals



RUAA Components

- 2 Field Surveys Conducted
 - Base Flow Conditions
 1. Sustained typical dry warm-weather flow
 2. Between rainfall events
 - Periods of Likely Use (May-Sept)

Air Temperature > 70°F

 1. Spring Break
 2. Weekends
 3. Holidays
 4. Summer



RUAA Components

- Field Data Sheets:
 - Stream characteristics
 - Current weather conditions & daily conditions for the previous month
 - Riparian zone, ease of bank access, dominant substrate
 - Document recreation observed (if any)
 - Stream and pool measurements



RUAA Components

- Field Photographic Records
 - Each Survey Site
 - Upstream
 - Left
 - Right Bank
 - Downstream
 - At 30, 150, 300 M





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Buffalo Creek

Recreational Use Attainability Analysis Summary of Findings

Texas Institute for Applied Environmental Research
Stephenville, Texas



Why are we here?

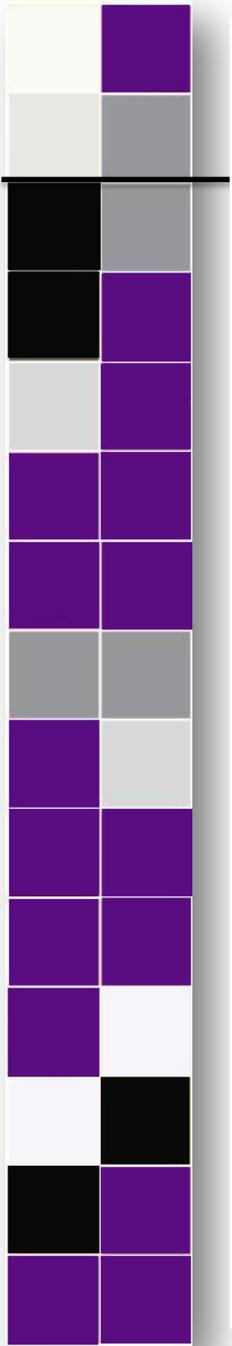
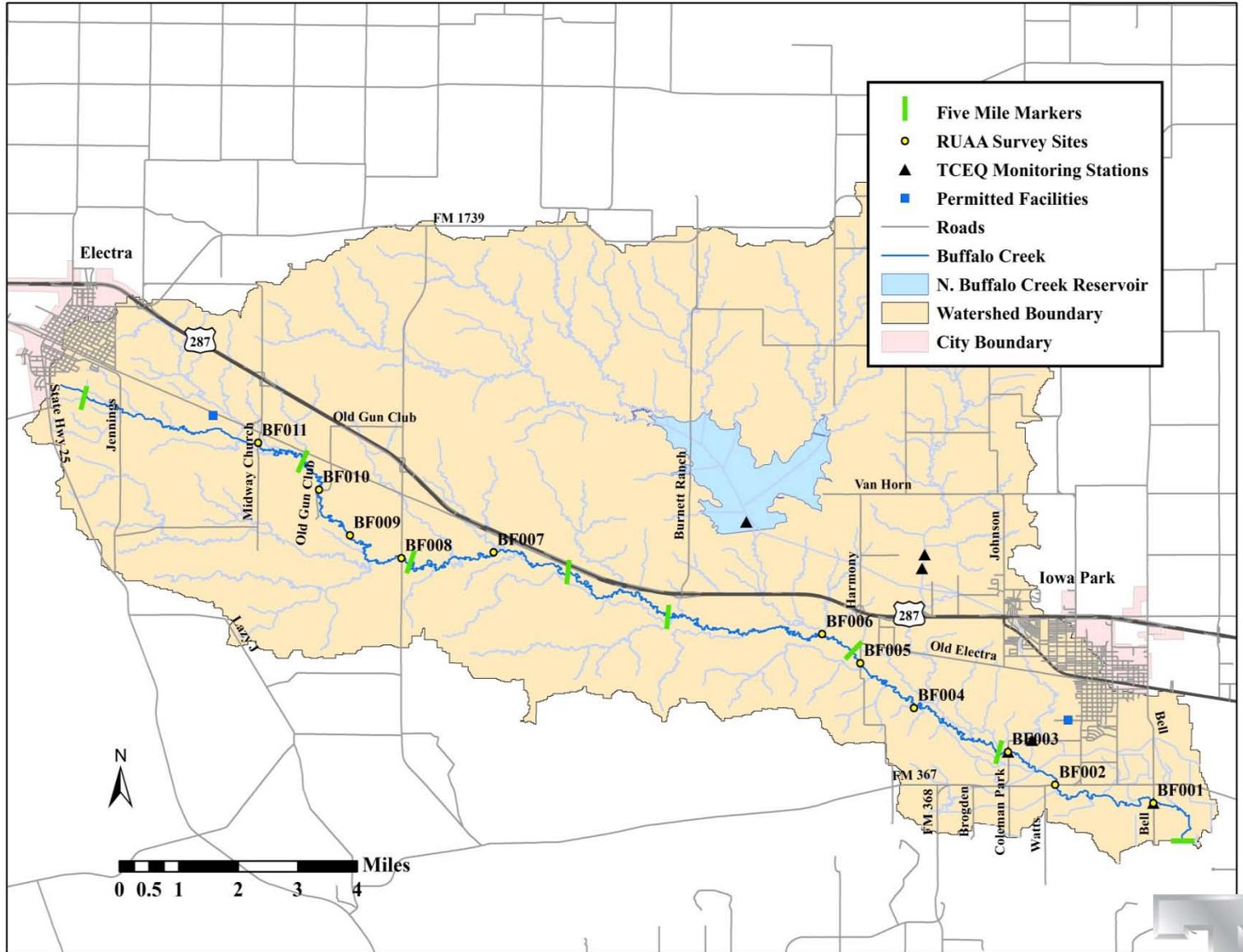
- Buffalo Creek listed as impaired
 - 2010 Texas Water Quality 303(d) List
 - Impaired for primary recreation
 - Based on elevated levels of bacteria



Survey Dates for Buffalo Creek

- 2013 – First RUAA Survey
 - Data Collected June 8th - 11th
 - (Saturday through Tuesday)
- 2013 – Second RUAA Survey
 - Data Collected July 20th – 21st
 - (Saturday and Sunday)





Findings RUAA Survey

- Summary
 - Limited & difficult access to water
 - No direct recreation observed
 - Heavy debris & many obstructions



Buffalo Creek Photographs

Upstream at BF010



Lion Scat at BF010



Buffalo Creek Photographs

Obstruction at BF009



Upstream BF008



Buffalo Creek Photographs

Cattle Crossing at BF008



Beaver Gnaw BF007



Buffalo Creek Photographs

Water Gap at BF006



Down Stream at BF006



Buffalo Creek Photographs

No Trespassing Sign at BF005



Debris Pile at BF005



Buffalo Creek Photographs

Obstruction at BF002



Down Stream at BF001



Next Steps

- Final Technical Report Submitted to TSSWCB for Review
- 30 Day Stakeholder Comment Period on Final Technical Report
- Conduct Final Public Meeting for Buffalo Creek RUAA
 - Tentatively Scheduled: [June 9, 2014](#)





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Paradise Creek

Recreational Use Attainability Analysis Summary of Findings

Texas Institute for Applied Environmental Research
Stephenville, Texas



Why are we here?

- Paradise Creek listed as impaired
 - 2006 Texas Water Quality 303(d) List
 - Impaired for primary recreation
 - Based on elevated levels of bacteria

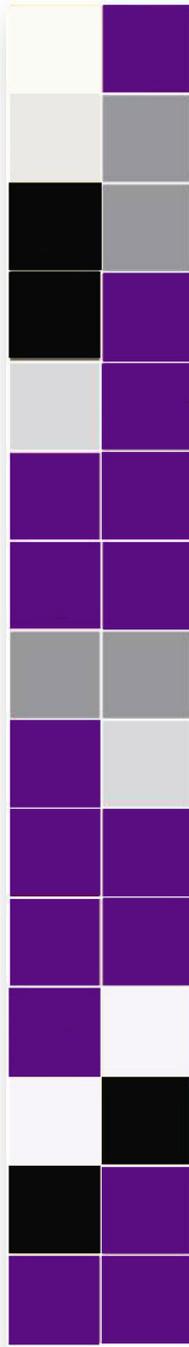
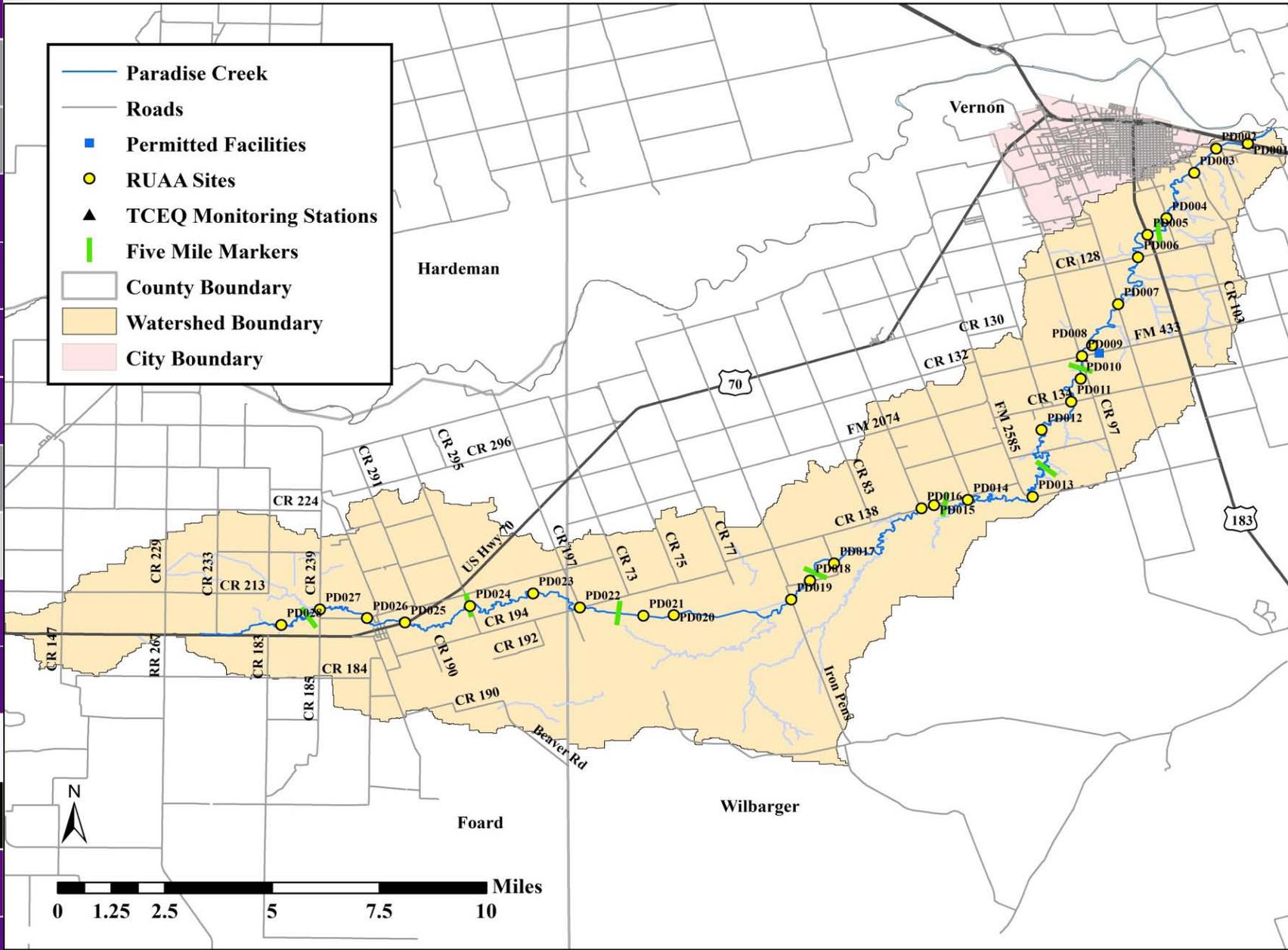


Survey Dates for Paradise Creek

- 2013 – First RUAA Survey
 - Data Collected June 8th - 11th
 - (Saturday through Tuesday)
- 2013 – Second RUAA Survey
 - Data Collected August 11th – 13th
 - (Sunday through Tuesday)



-  Paradise Creek
-  Roads
-  Permitted Facilities
-  RUAA Sites
-  TCEQ Monitoring Stations
-  Five Mile Markers
-  County Boundary
-  Watershed Boundary
-  City Boundary



Findings RUAA Survey

- Summary
 - Limited water
 - Limited access to stream
 - No direct recreation observed
 - Dense brush



Paradise Creek Photographs

Upstream at PD028



Down Stream PD001



Paradise Creek Photographs

Shotgun Shell at PD021



Duck Decoys at PD007



Paradise Creek Photographs

300m Upstream at PD026

300m Downstream at PD002



Paradise Creek Photographs

300m Upstream at PD012



300m Downstream at PD016



Paradise Creek Photographs

150m Upstream at PD016



Water Gap at PD018



Paradise Creek Photographs

Oil & Gas Pipe at PD015



Brush Obstruction at PD018



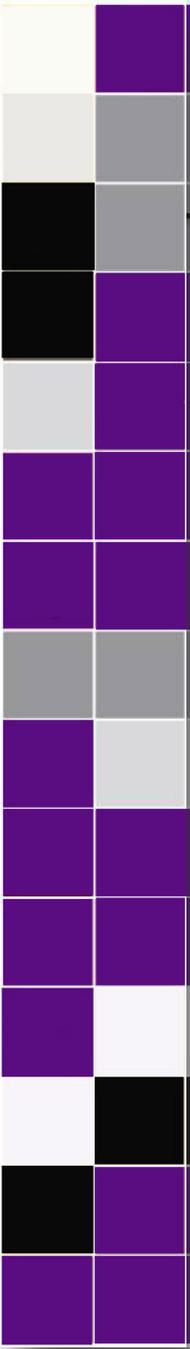
Paradise Creek Photographs

**Tires & Trash near
Bridge at PD013**



Trash at Bridge at PD006





Next Steps

- Final Technical Report Submitted to TSSWCB for Review
- 30 Day Stakeholder Comment Period on Final Technical Report
- Conduct Final Public Meeting for Paradise Creek RUAA
 - Tentatively Scheduled: [June 10, 2014](#)





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Sweetwater Creek

Recreational Use Attainability Analysis Summary of Findings

Texas Institute for Applied Environmental Research
Stephenville, Texas



Why are we here?

- Sweetwater Creek listed as impaired
 - 2000 Texas Water Quality 303(d) List
 - Impaired for primary recreation
 - Based on elevated levels of bacteria



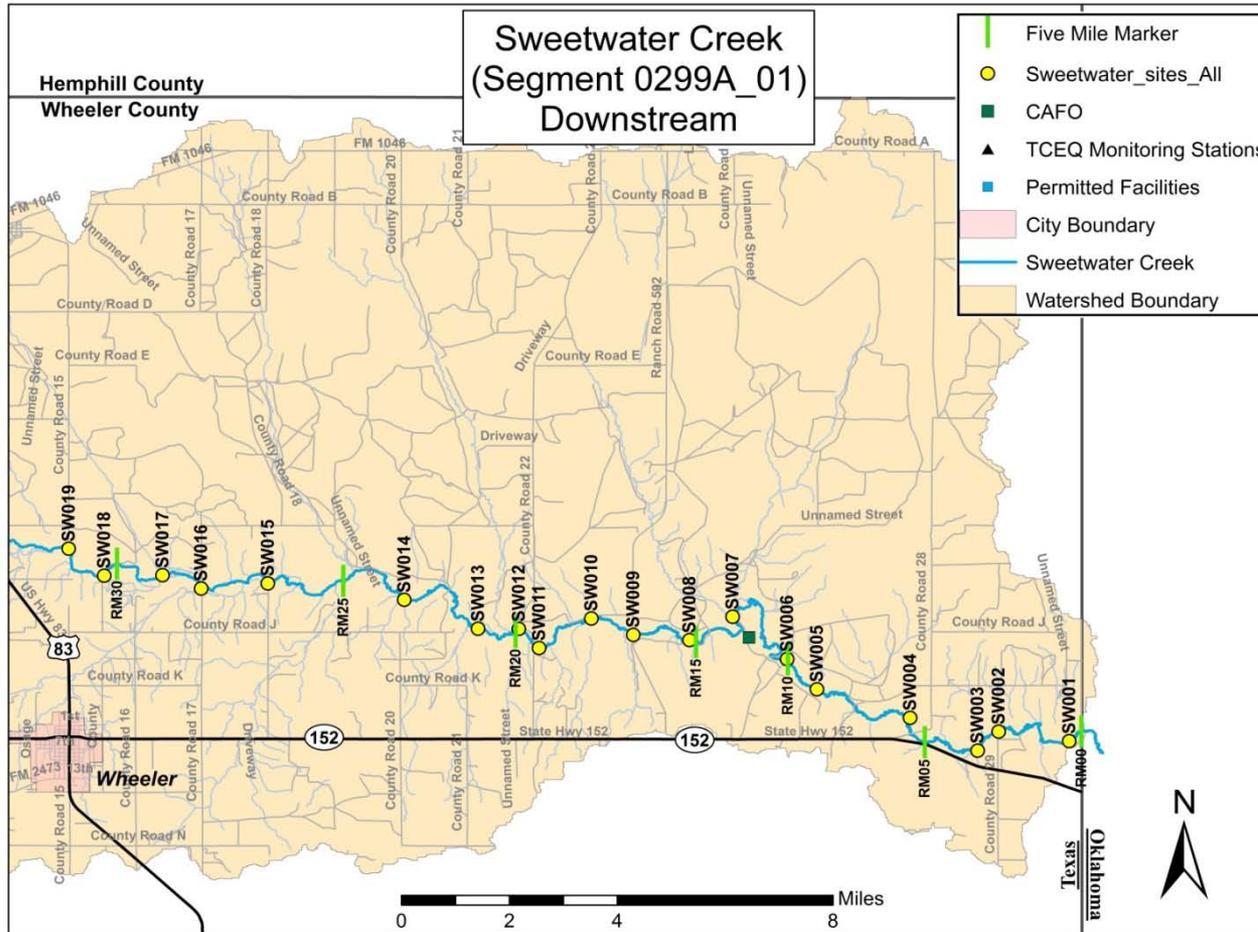
Survey Dates for Sweetwater Creek

- 2013 – First RUAA Survey
 - Data Collected May 25th – 28th
 - (Saturday through Tuesday)

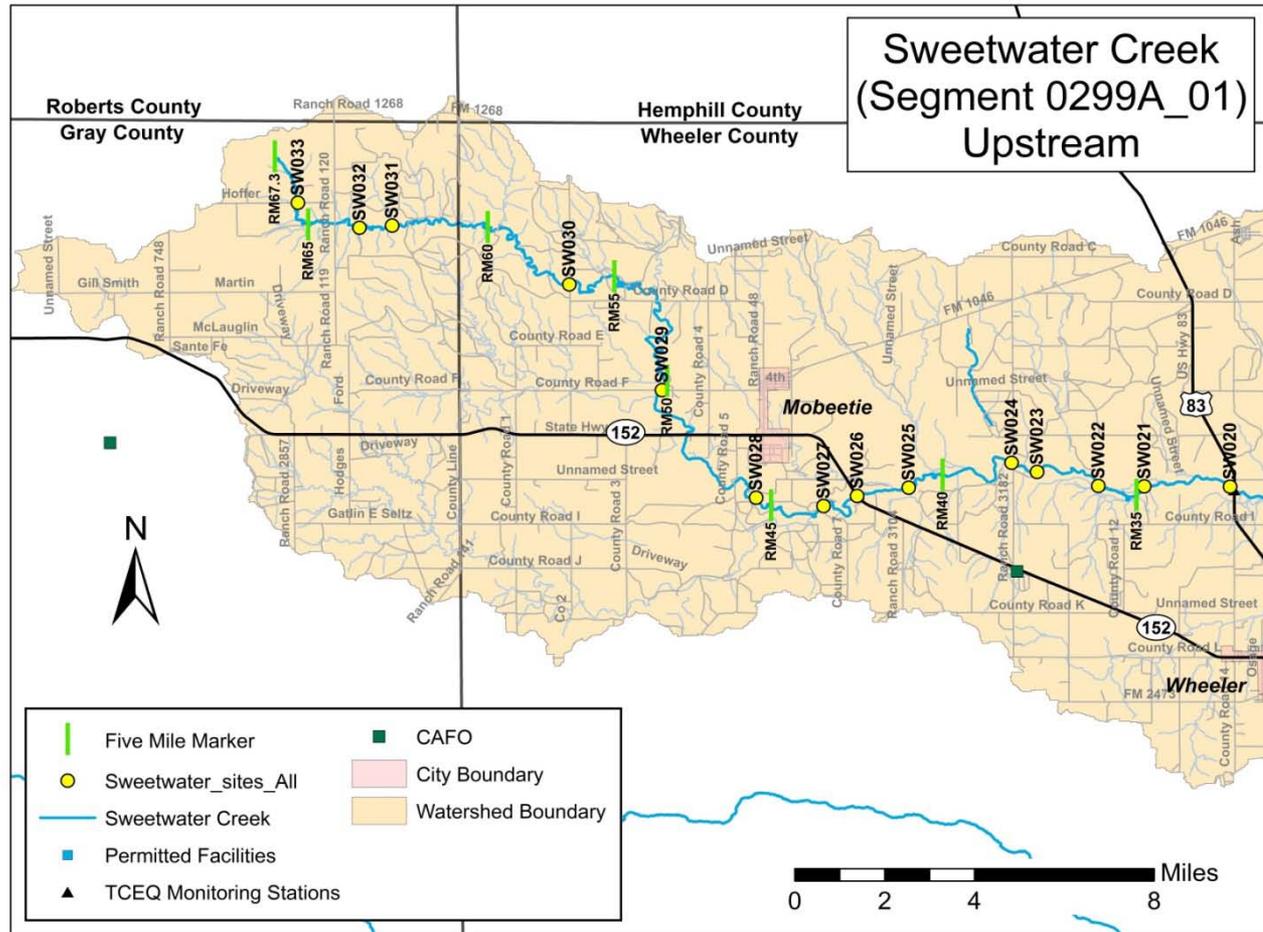
- 2013 – Second RUAA Survey
 - Data Collected July 28th – 30th
 - (Sunday through Tuesday)



Sweetwater Creek Downstream



Sweetwater Creek Upstream



Findings RUAA Survey

- Summary
 - Limited water for recreation
 - No direct recreation observed
 - Limited public access, mostly private property



Sweetwater Creek Photographs

Downstream at SW001



Steep Banks at SW001



Sweetwater Creek Photographs

Hydrophytes and surface scum at SW009



Obstruction at SW011



Sweetwater Creek Photographs

Upstream at SW 013



Beaver Activity at SW020



Sweetwater Creek Photographs

Downstream at SW030



Upstream at SW033



Next Steps

- Final Technical Report Submitted to TSSWCB for Review
- 30 Day Stakeholder Comment Period on Final Technical Report
- Conduct Final Public Meeting for Sweetwater Creek RUAA
 - Tentatively Scheduled: [June 11, 2014](#)





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Choctaw Creek & Iron Ore Creek

Recreational Use Attainability Analysis Overview

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March 2014



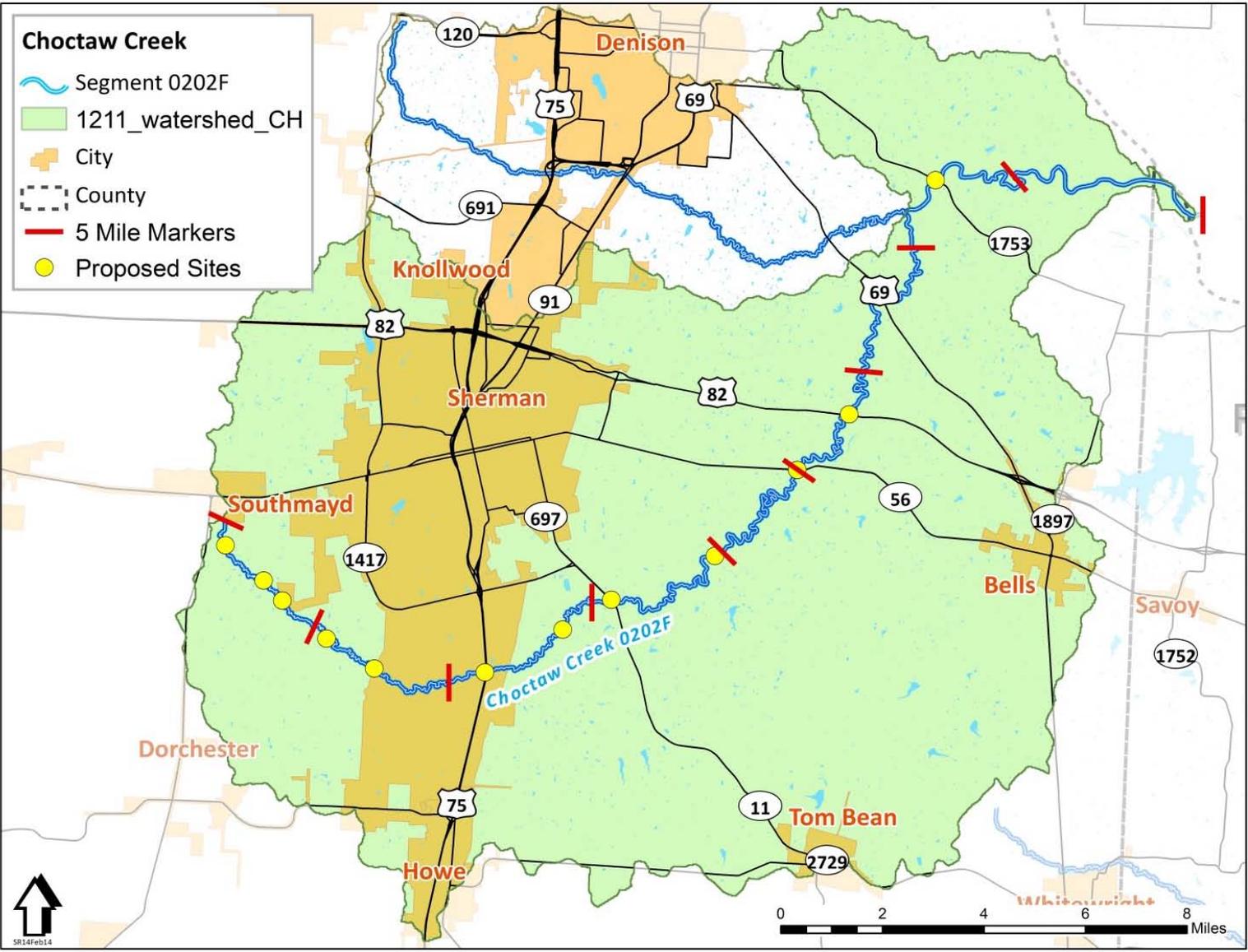
Impaired Stream Segments

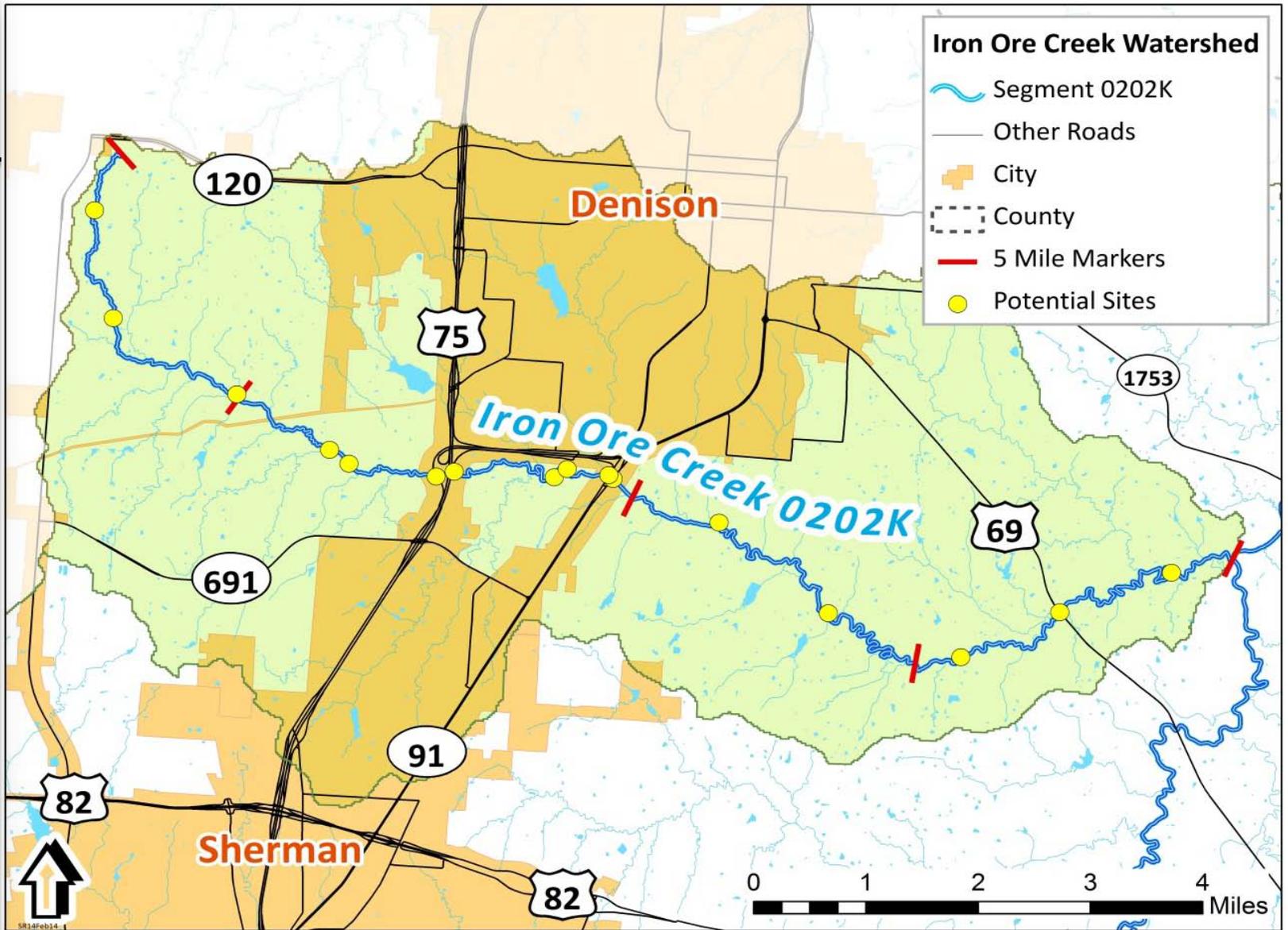
- Choctaw Creek & Iron Ore Creek are impaired for primary contact recreation
 - Choctaw Creek (0202F)
 - 2010 Texas Water Quality 303(d) List
 - Bacteria
 - » Current Geometric mean = 204 cfu/ 100mL (0202F_01)
 - » Current Geometric mean = 154 cfu/ 100 mL (0202F_02)
 - Iron Ore Creek (0202K)
 - 2010 Texas Water Quality 303(d) List
 - Bacteria
 - » Current Geometric mean = 327 cfu/ 100mL

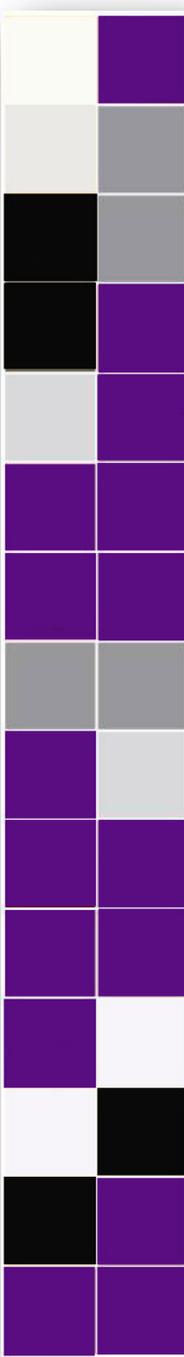


Choctaw Creek

-  Segment 0202F
-  1211_watershed_CH
-  City
-  County
-  5 Mile Markers
-  Proposed Sites



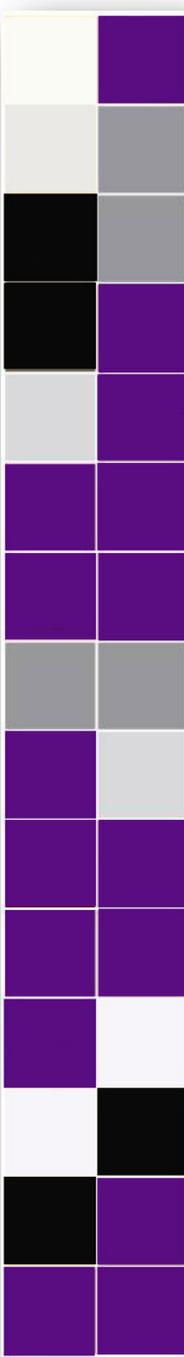




RUAA Site Selection Guidelines

- Goal for RUAA Survey
 - 3 sites for every 5 miles of stream
- Choctaw Creek is about 44 river miles long
 - Goal: 26 sites
- Iron Ore Creek is about 19 river miles long
 - Goal: 11 sites





Time Frame

- Proposed Field Survey Dates
 - May 20 – 25, 2014
 - July 15 – 19, 2014Or
 - June 16 – 21, 2014
 - August 11 – 16, 2014





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Bois d'Arc Creek

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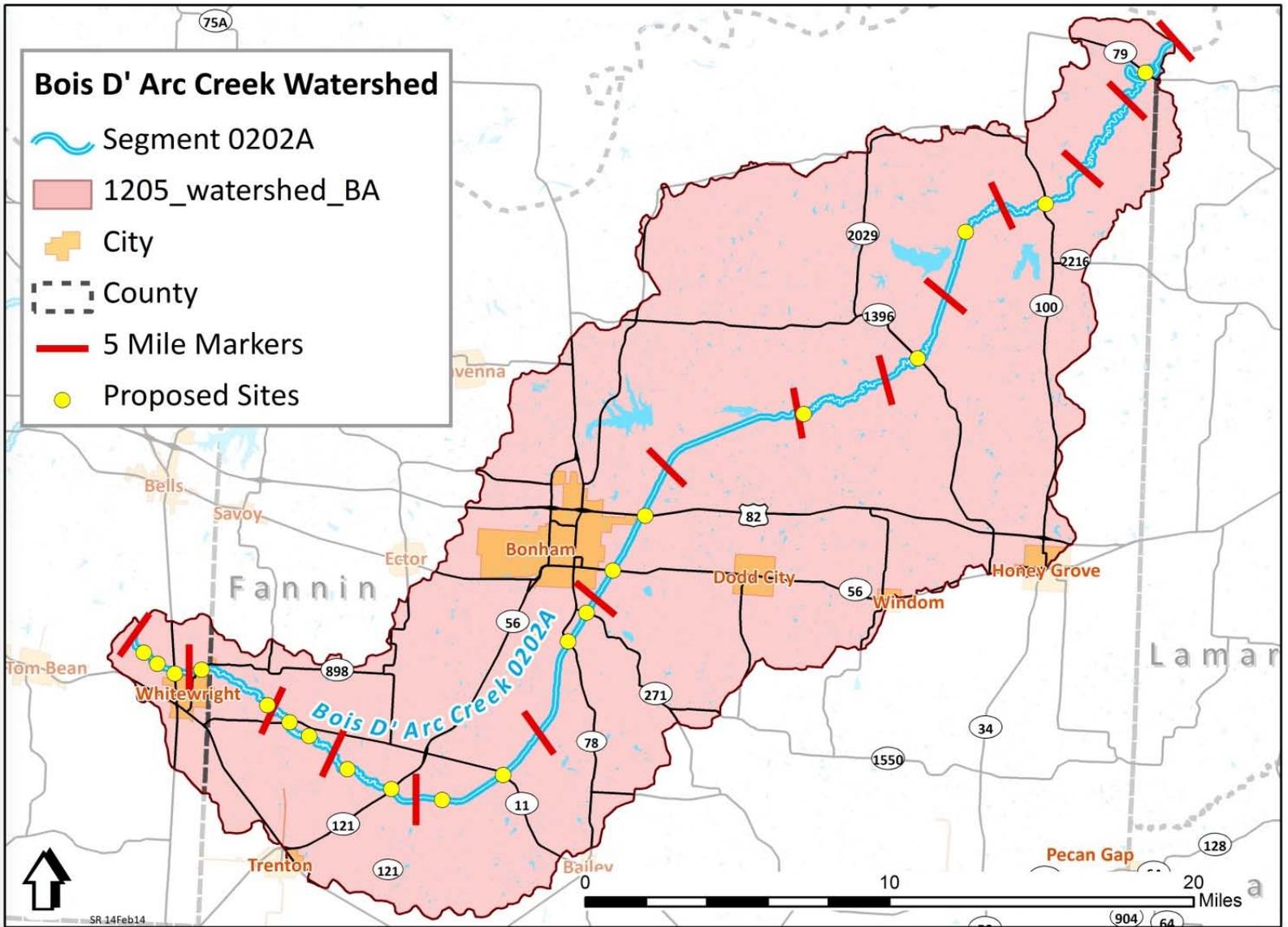
March 2014

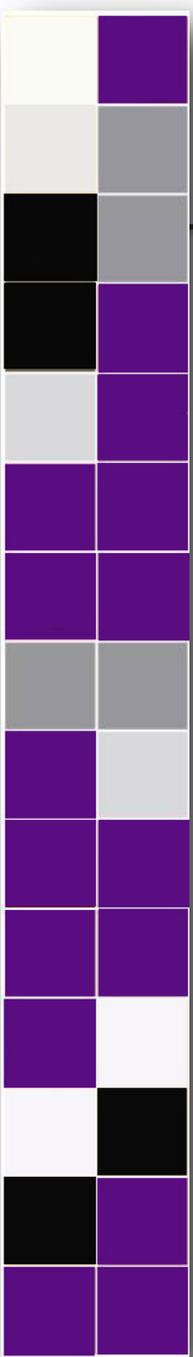


Impaired Stream Segments

- Bois d' Arc Creek (0202A) is listed as impaired for primary contact recreation
 - 2010 Texas Water Quality 303(d) List
 - Bacteria
 - Current Geometric mean = 177 cfu/ 100mL



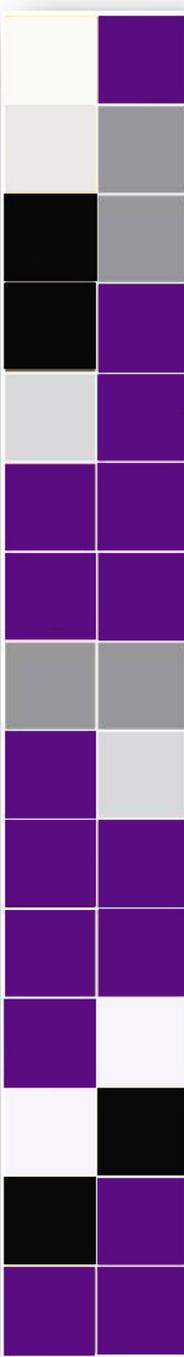




RUAA Site Selection Guidelines

- Goal for RUAA Survey
 - 3 sites for every 5 miles of stream
- Bois d' Arc Creek is approximately 68 river miles long
 - Goal: 41 sites





Time Frame

- Proposed Field Survey Dates
 - May 20 – 25, 2014
 - July 15 – 19, 2014Or
 - June 16 – 21, 2014
 - August 11 – 16, 2014





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Smith Creek

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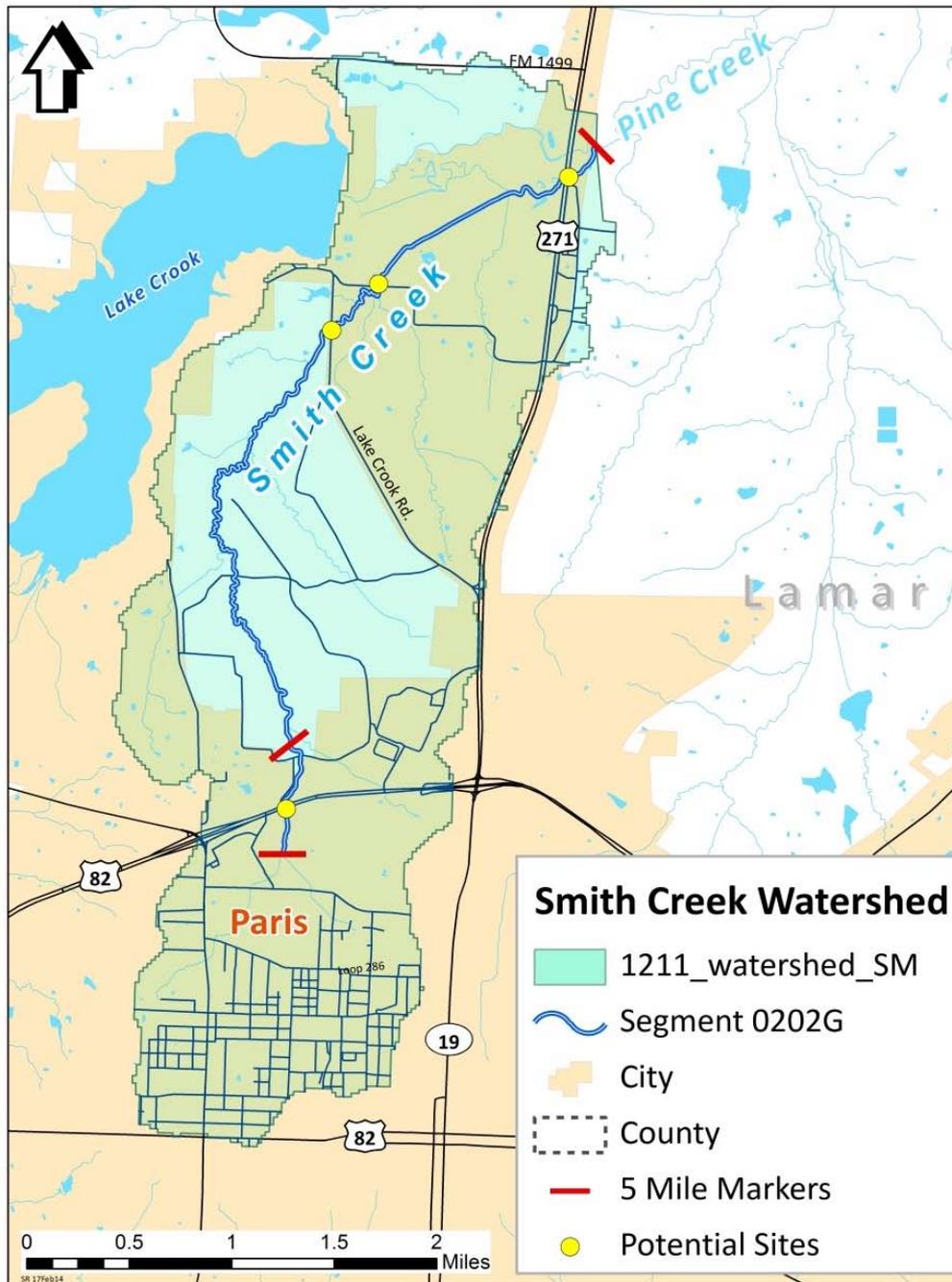
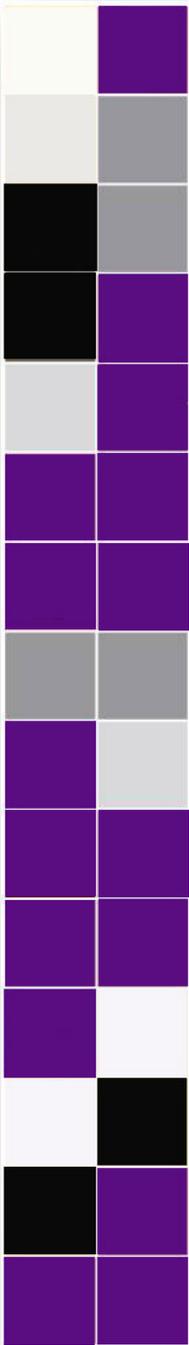
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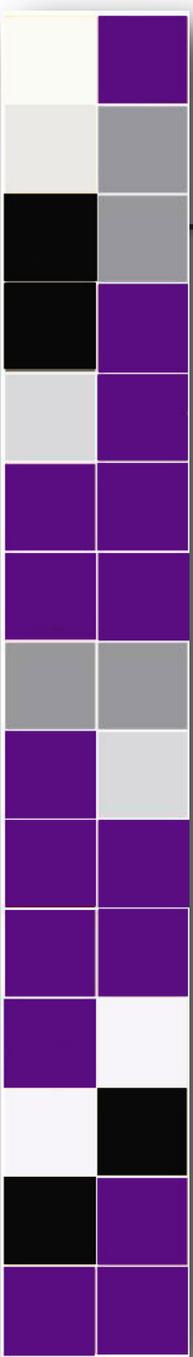


Impaired Stream Segments

- Smith Creek (0202G) is impaired for primary contact recreation
 - 2006 Texas Water Quality 303(d) List
 - Bacteria
 - Current Geometric mean = 987 cfu/ 100mL

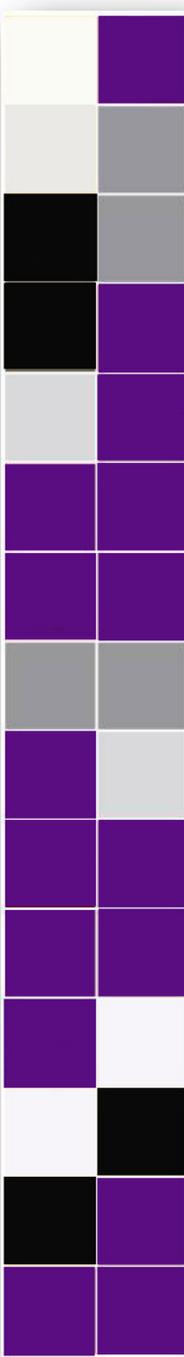






RUAA Site Selection Guidelines

- Goal for RUAA Survey
 - 3 sites for every 5 miles of stream
- Smith Creek is about 6 river miles long
 - Goal: 3 sites



Time Frame

- Proposed Field Survey Dates
 - May 20 – 25, 2014
 - July 15 – 19, 2014Or
 - June 16 – 21, 2014
 - August 11 – 16, 2014





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Mud Creek

Recreational Use Attainability Analysis Overview

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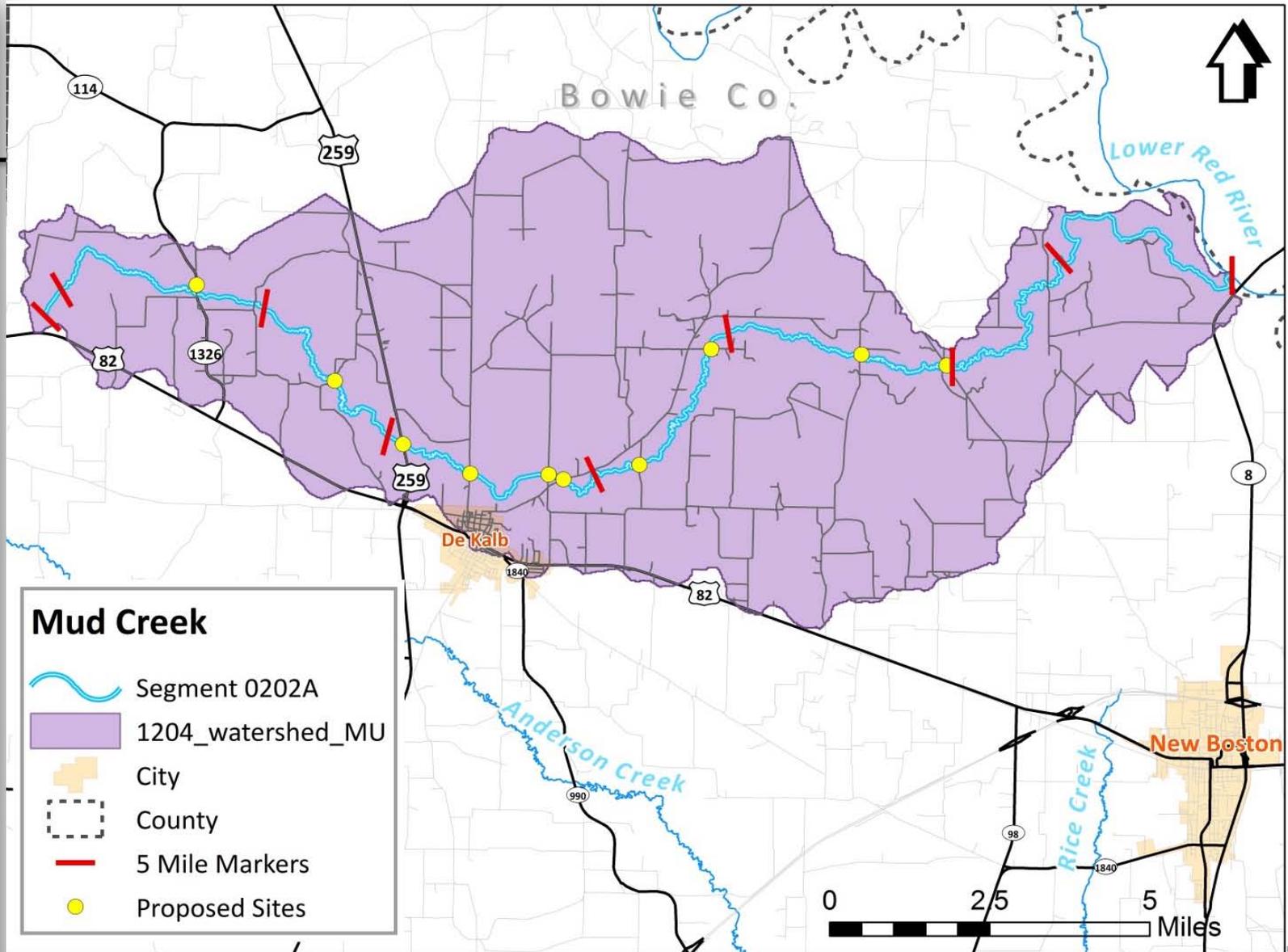
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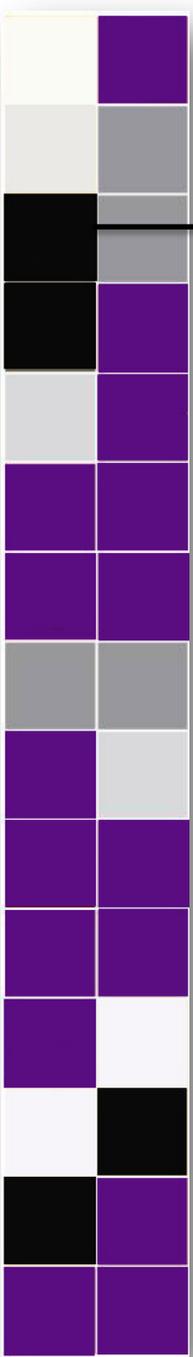


Impaired Stream Segments

- Mud Creek (0201A) is listed as impaired for primary contact recreation
 - 2002 Texas Water Quality 303(d) List
 - Bacteria
 - Current Geometric mean = 204 cfu/ 100mL



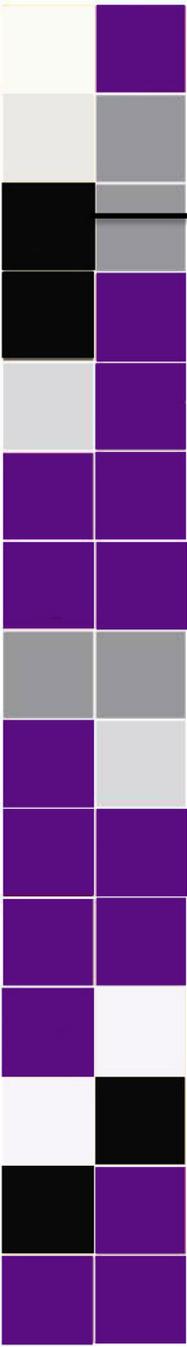




RUAA Site Selection Guidelines

- Goal for RUAA Survey
 - 3 sites for every 5 miles of stream
- Mud Creek is about 36 river miles long
 - Goal: 21 sites





Time Frame

- Proposed Field Survey Dates

- May 20 – 25, 2014

- July 15 – 19, 2014

Or

- June 16 – 21, 2014

- August 11 – 16, 2014



Questions?

Contact Information

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Project Website

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