Urban Riparian & Stream Restoration Program: Management & Photo Monitoring

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Hindrances to Healthy / Functional Riparian Areas:

- Farming too close to the bank
- Mowing, spraying close to the creek
- Manicured landscapes next to the creek
- *Chronic grazing concentrations in* creek areas
- Excessive deer, exotics, hogs in creek
- Burning in riparian area
- Removal of large dead wood
- Artificial manipulation of banks / sediment
- Excessive vehicle traffic in creek area
- Poorly designed road crossings / bridges
- Excessive recreational foot traffic
- Excessive alluvial pumping or other withdrawals

Visual Indicators of Stream Health Include:

http://texasriparian.org/wp-content/uploads/2013/02/Stream-Visual-Assessment-Protocol-2.pdf

- Channel condition
- Access to floodplain and hydrologic alteration
- Riparian zone
- Bank stability
- Water appearance
- Nutrient enrichment
- Barriers to fish movement
- Instream fish cover
- Pools
- Invertebrate habitat

Other factors if applicable include:

- Canopy cover
- Manure presence
- Salinity
- Riffle embeddedness
- Macroinvertebrates observed
- Fish species observed

Management and Stewardship

- The impacts of stream flow and water quality are cumulative as the water moves down the system.
- Management upstream can lead to positive or negative impacts downstream.
- As you assess the stream and riparian ecosystem, think about what may be hindering it.
- Has something caused a change in the water, sediment or vegetation?
- Management activities should protect healthy systems or allow recovery to return to a healthy functioning system.
- Land and Water Stewardship!

Access to Streams

- Restricting access to specific points along a stream should be a primary goal.
- This will eliminate most of the bank erosion caused by human traffic and wildlife.
- Develop access ramps or trails with hardened surfaces such as coarse gravel over geotextile and slopes of 6:1 or flatter.
  - Reduces amount of vehicles, boats, foot traffic along the banks by providing one main access point for recreators.
- Locating shade, salt, minerals, and winter feeding sites in portions of the pasture away from the stream will help reduce the time livestock spend at or adjacent to the water.

Managing Invasive Species

- Noxious and Invasive species include any species that has a serious potential to cause economical or ecological harm to agriculture, native plants, ecology and waterways.
- Invasives are affecting aquatic, riparian and upland areas throughout the state.
- The Texas Department of Agriculture currently lists 30 noxious weeds proliferating in Texas: giant salvinia, giant cane (*Arundo donax*), Chinese tallow tree are some of the most potent invaders.
- Feral hogs are estimated to cause an estimated $52 Million in damage annually in Texas and are increasing in numbers.
- Manage to reduce invasive species.

Austin Grow Zone

- Establish a "Grow Zone" along both banks of the creek, approximately 25 ft.
- Allow for passive/natural plant growth in entire buffer area.
- Monitor for changes over time and apply adaptive management approaches where necessary.
- Coordinate periodic trash removal, weed/invasive vegetation management, and native seeding/planting.
- Install educational and demarcation signage where appropriate.


Mowed


First Year Growth


5 to 10 Years

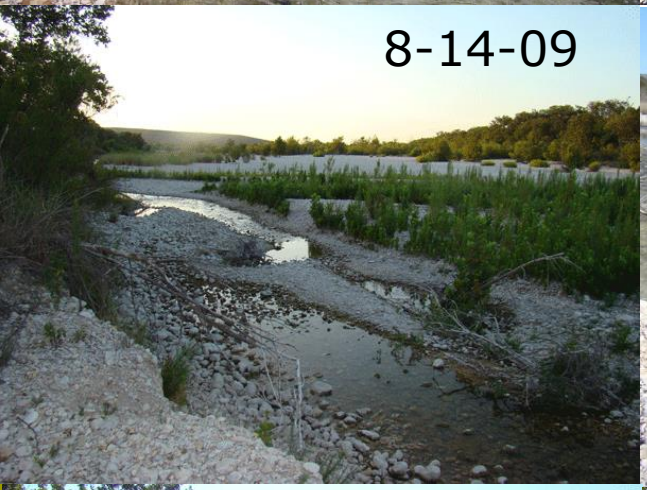
Photo Monitoring

- Repeating photographs at set locations will allow better assessment of current conditions and changes over time.
- Location selection: critical sites along the stream where the force of moving water has the potential for detrimental impacts
  - A tributary or high runoff location
  - Where the stream changes course – point bar or bend
  - Sites that are easily accessible and representative


12-2-07


10-2-08


5-2-09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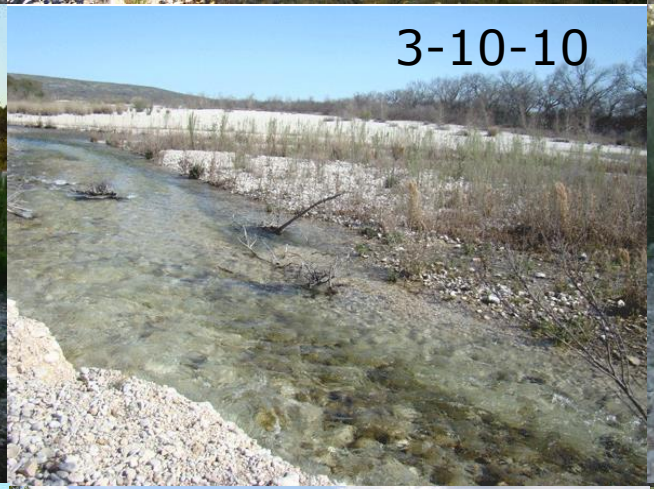

3-10-10


9-15-10


9-2-11


4-8-12
2012 04 08


9-10-12

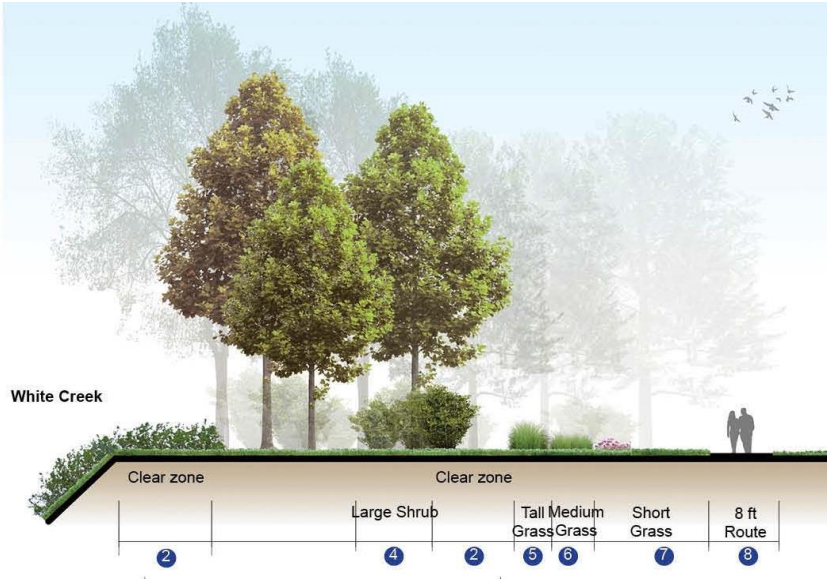

December
2007


June 2014

2015 May Flood and Post Flood

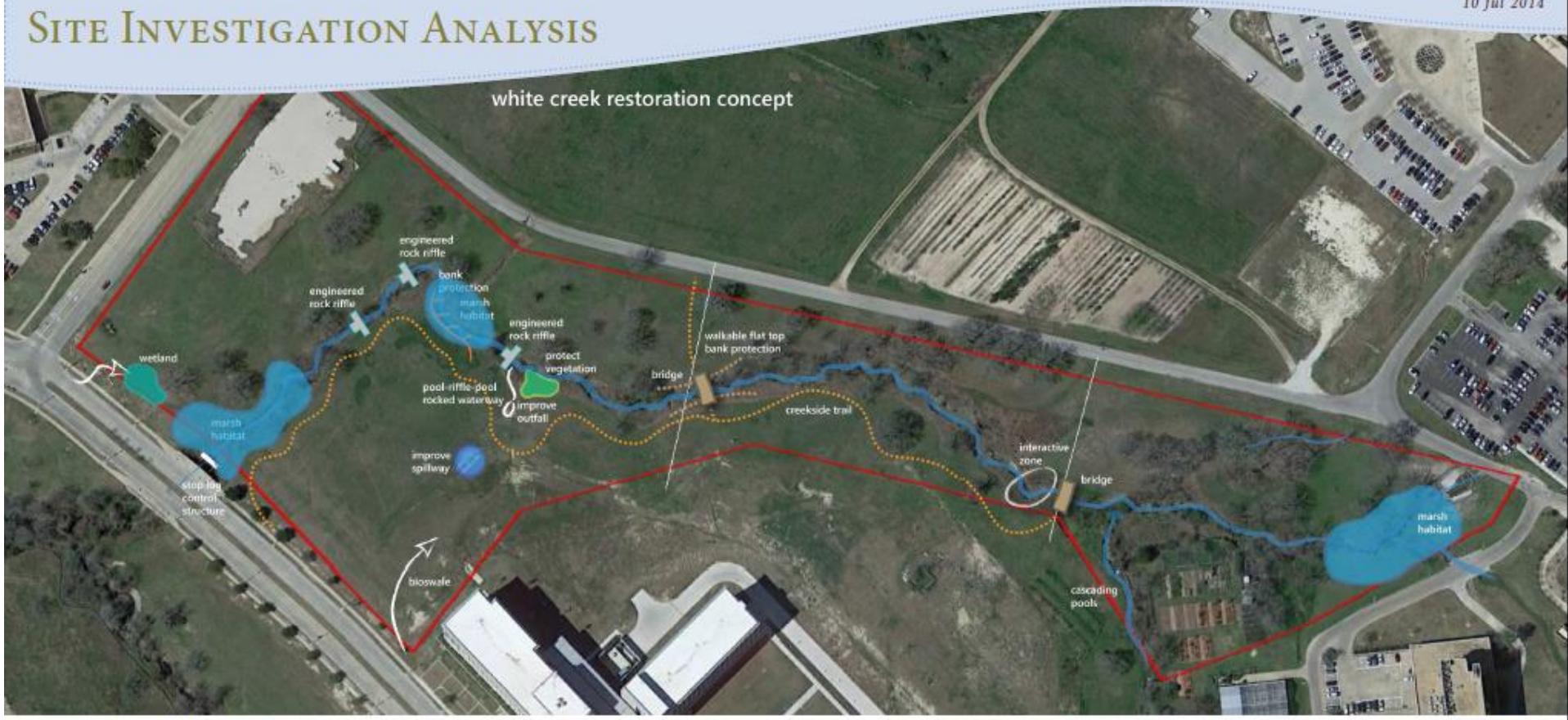
Texas A&M Gardens and Greenway

White Creek Stabilization



Site Investigation Analysis

10 Jul 2014



Developed - May 28, 2014

TEXAS A&M GARDENS & GREENWAY

white creek restoration

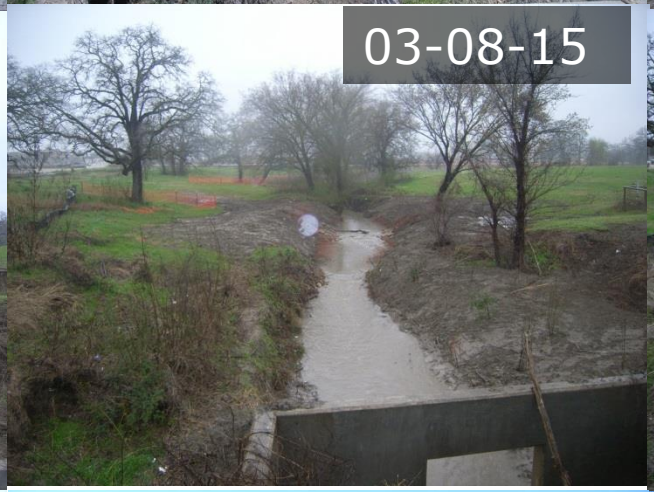
Stanley Consultants


02-06-15


02-18-15


02-21-15


02-26-15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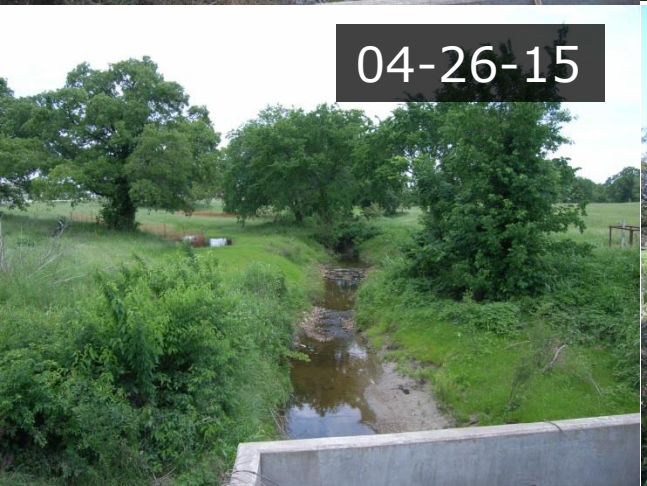
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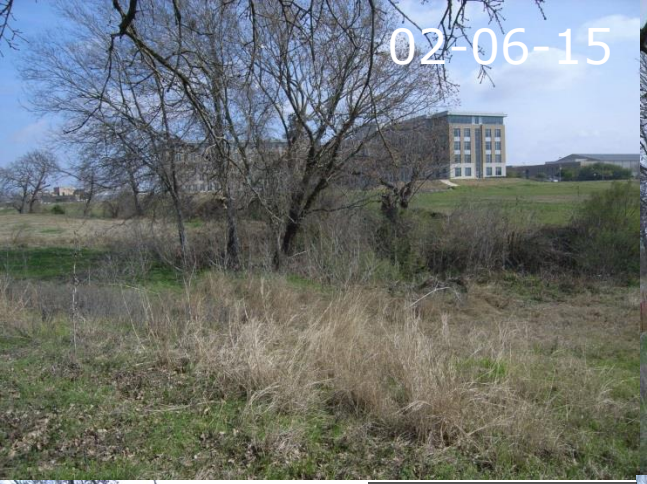
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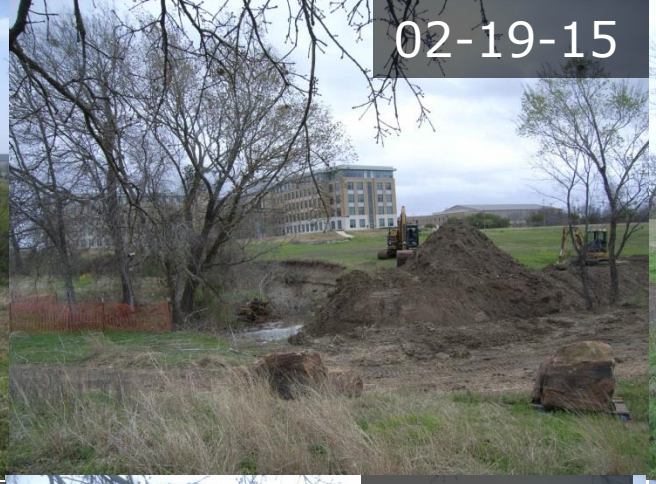
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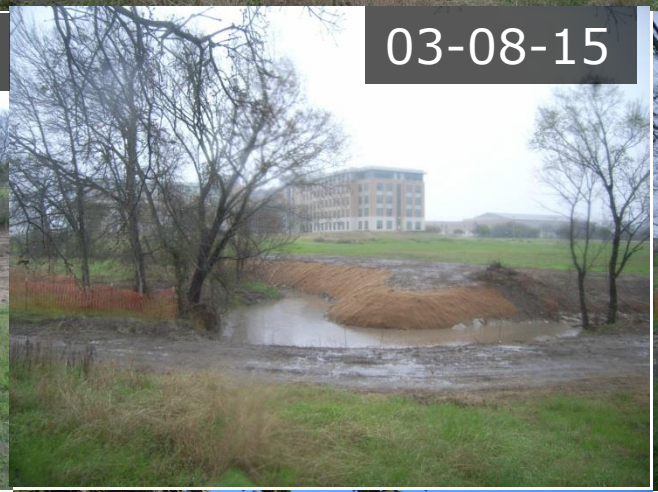
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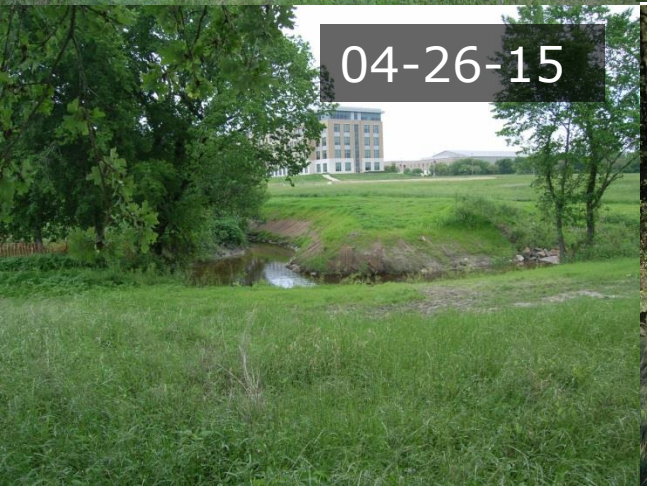
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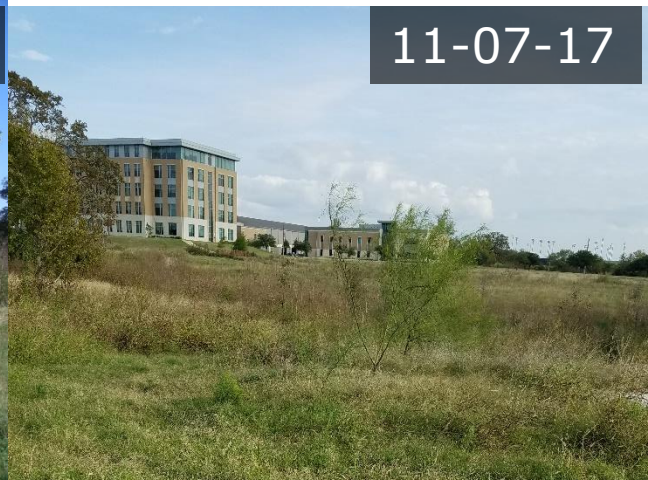
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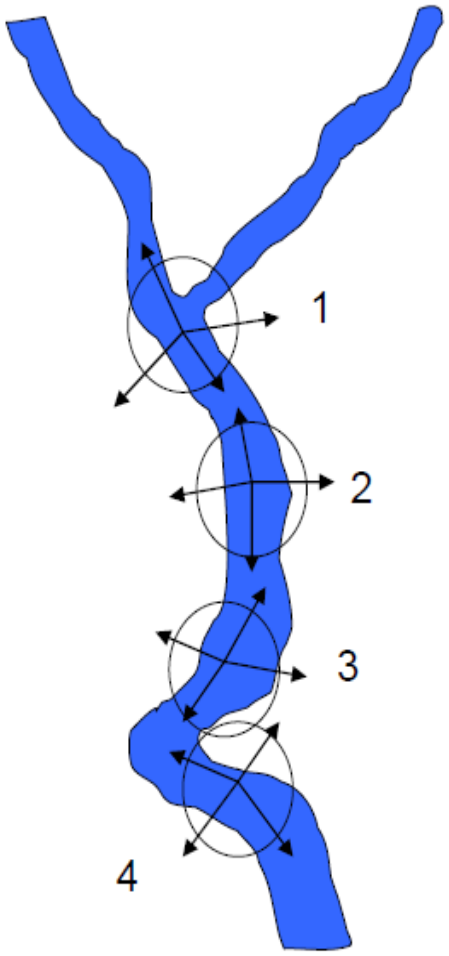
Permanent Photo Point Method

- Four photographs should be taken at each observation site:
  - 1) upstream showing the nearest bank , stream channel and opposite bank if possible,
  - 2) perpendicular to the stream of the opposite bank,
  - 3) perpendicular to the stream away on the bank where the observer is standing, and
  - 4) downstream showing the channel and both banks if possible.
- With a felt pen and a yellow paper pad (white is too bright), make a sign to include in the photo scene.
- Include some identification (stream name, range site, etc.) concerning the specific scene being photographed and the date.

Key Locations to Monitor

- Each location should be permanently marked for future evaluations using a steel stake or on-the-ground reference plus GPS coordinates if possible.
- Locate the permanent reference point a "safe" distance inland
- Make a map of the stream showing the location of each permanent marker and the monitoring point.



Physical location for monitoring stream-riparian areas should be located on either bank. Arrows show the direction of photographs.

Thank You!

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