

Muddy Creek North Branch Restoration

November 15, 2017

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Straughan Environmental



Presentation Outline

- Who are we?
- What is it?
- Why did we do it?
- What did we hope to evaluate?
- How did we do it?





Smithsonian Environmental
Research Center



Who are we?

Diverse project partners

What is it?

- Research project
- 1,500 linear foot stream and valley restoration
- Using Regenerative Stream Channel (RSC) technique
 - Raise eroded/entrenched system to/above the legacy fill terrace



Why did we do it?

- To collect good data and share it
- To answer current questions
- To ask new ones
- So that we could have meetings like this!



Recommendations of the Expert Panel to Define Removal Rates for Individual Stream Restoration Projects

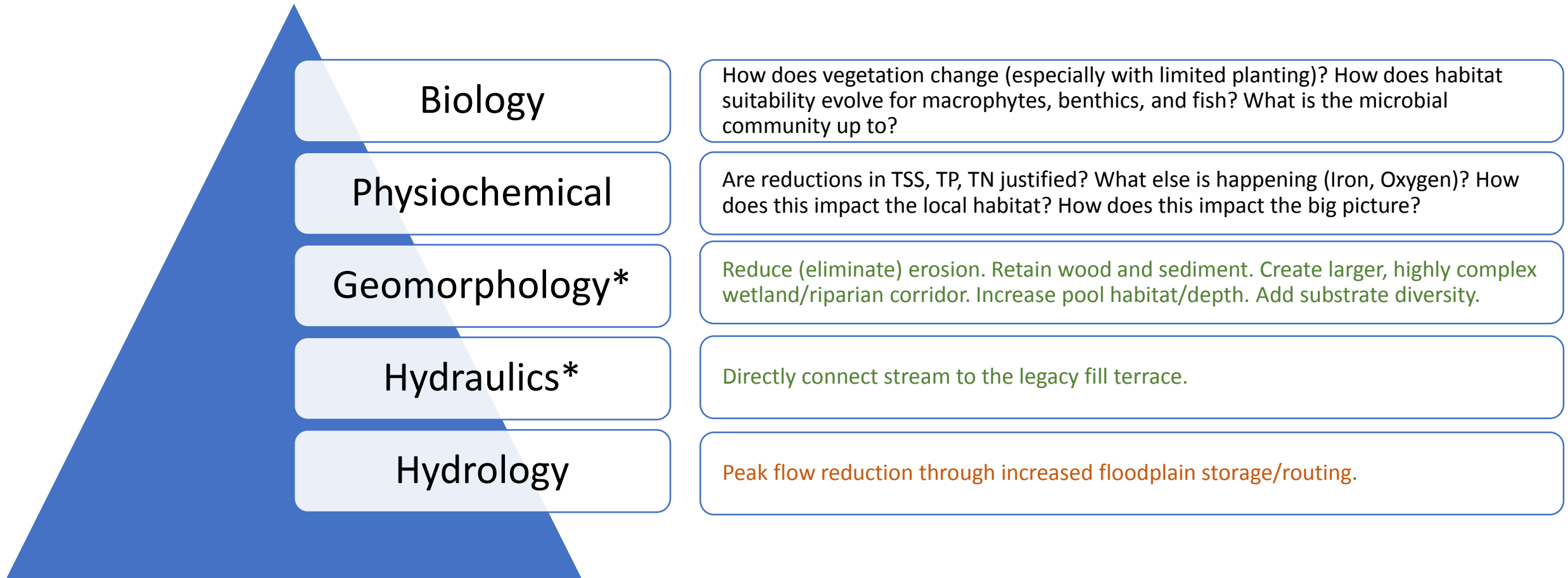
Joe Berg, Josh Burch, Deb Cappuccitti, Solange Filoso, Lisa Fraley-McNeal,
Dave Goerman, Natalie Hardman, Sujay Kaushal, Dan Medina, Matt Meyers, Bob Kerr,
Steve Stewart, Bettina Sullivan, Robert Walter and Julie Winters

Accepted by Urban Stormwater Work Group (USWG): February 19, 2013
Approved by Watershed Technical Work Group (WTWG): April 5, 2013
Final Approval by Water Quality Goal Implementation Team (WQGIT): May 13, 2013
Test-Drive Revisions Approved by the USWG : January 17, 2014
Test-Drive Revisions Approved by the WTWG: August 28, 2014
Test-Drive Revisions Approved by the WQGIT: September 8, 2014



Prepared by:
Tom Schueler, Chesapeake Stormwater Network
and
Bill Stack, Center for Watershed Protection

What do we hope to evaluate?



* “the Service determined that pyramid Levels 2 – Hydraulics and 3- Geomorphology can be restored to fully functional.”

How did we do it?

Project Background



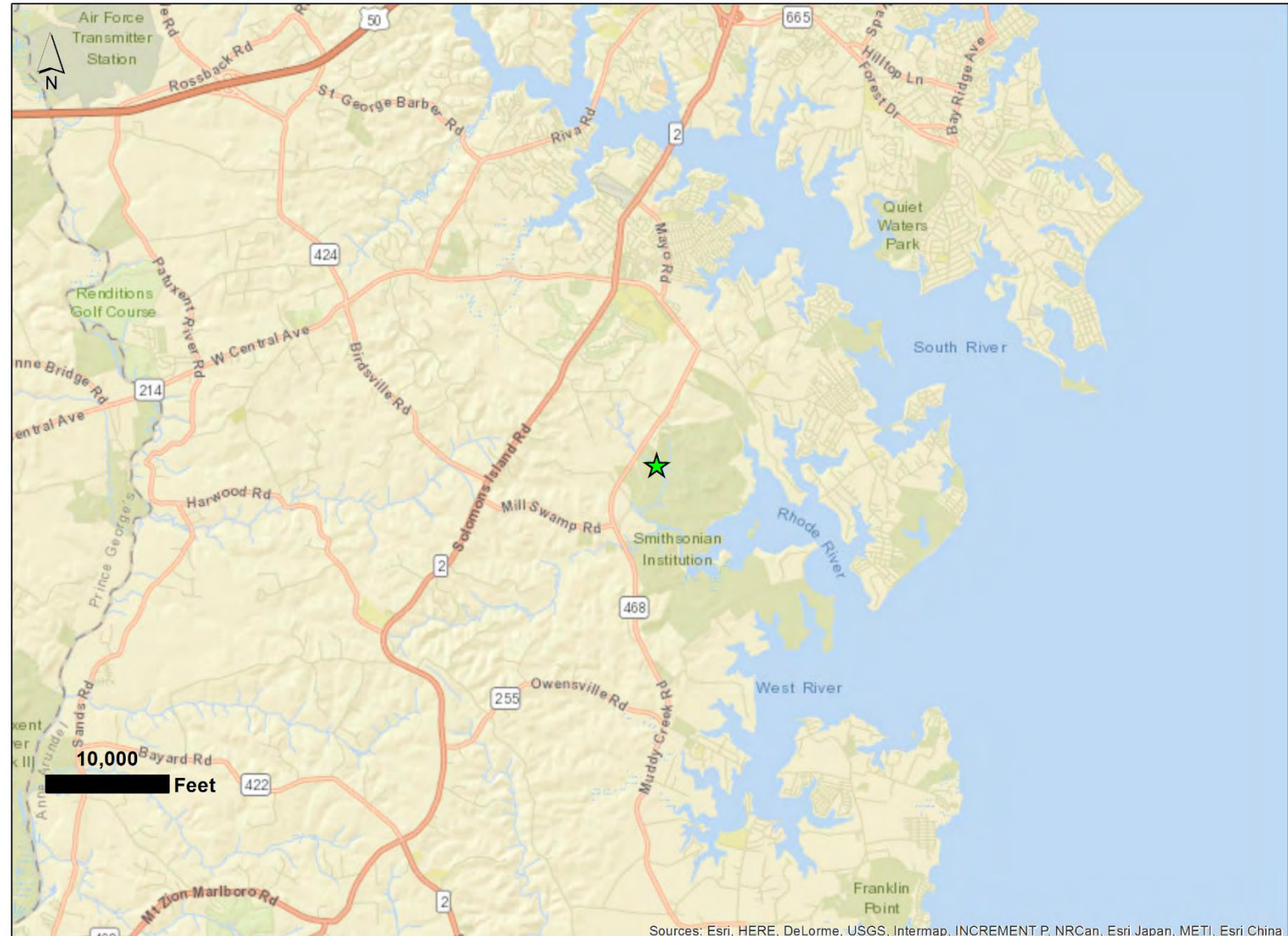
Project location

- Edgewater, MD (Anne Arundel)
- Atlantic Coastal Plain
- Rhode River
- SERC Property

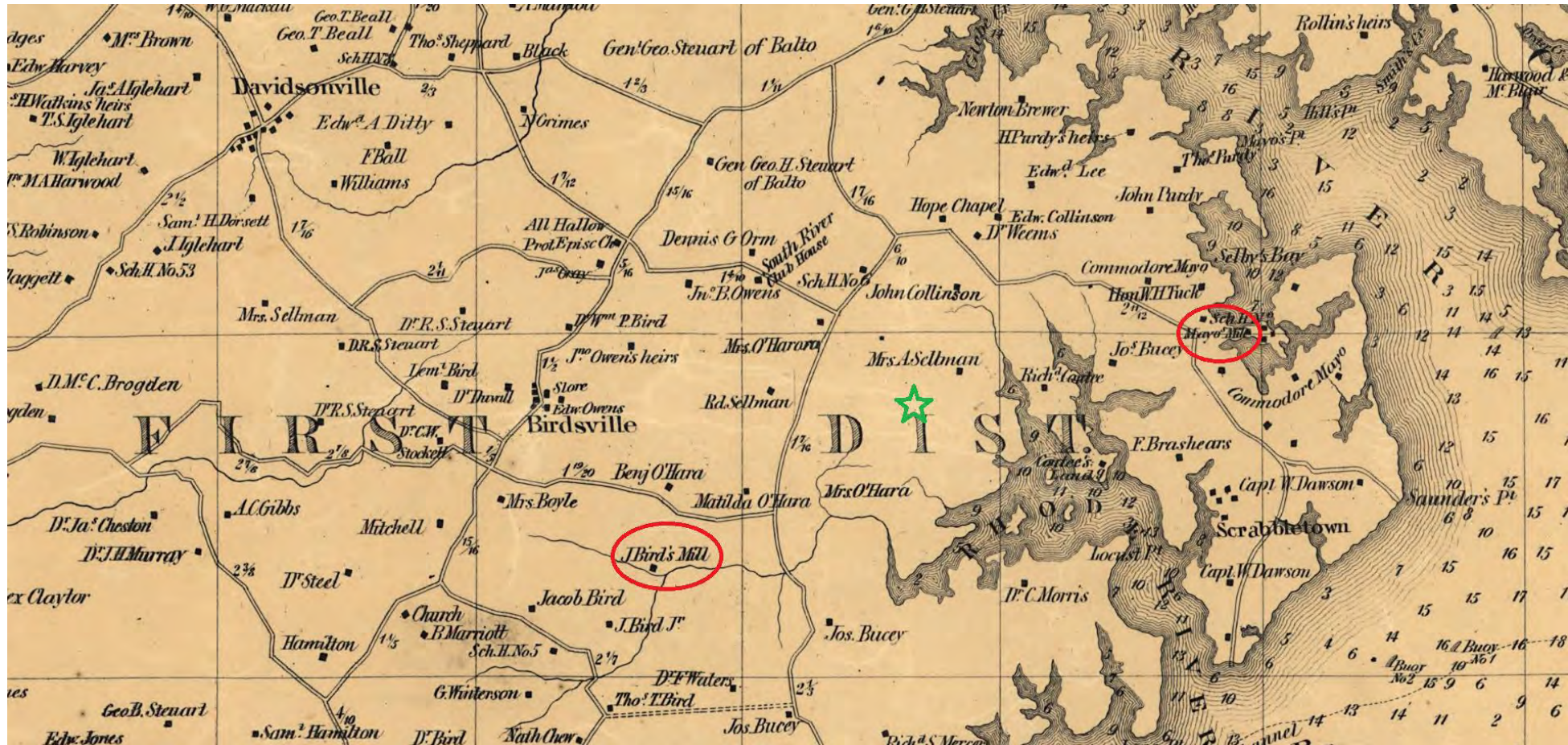


Project location

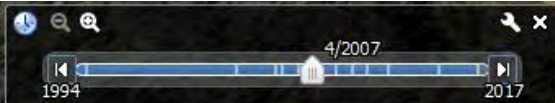
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Pre-project Conditions: Historical land use



1860 - Primarily agricultural/plantation land. Milling activity.



Pre-project conditions: Stream characteristics

- Drainage Area: 506.5 acres
- Slope: Very low (0.5%)
- Flow Regime: Intermittent
- Flashiness: Very flashy
- Presence of forest and wetlands: Well forested/minimal wetlands
- Depth of erosion: 10 ft to 6 ft
- Level of entrenchment: All of 10 year, majority of 100 year contained in channel

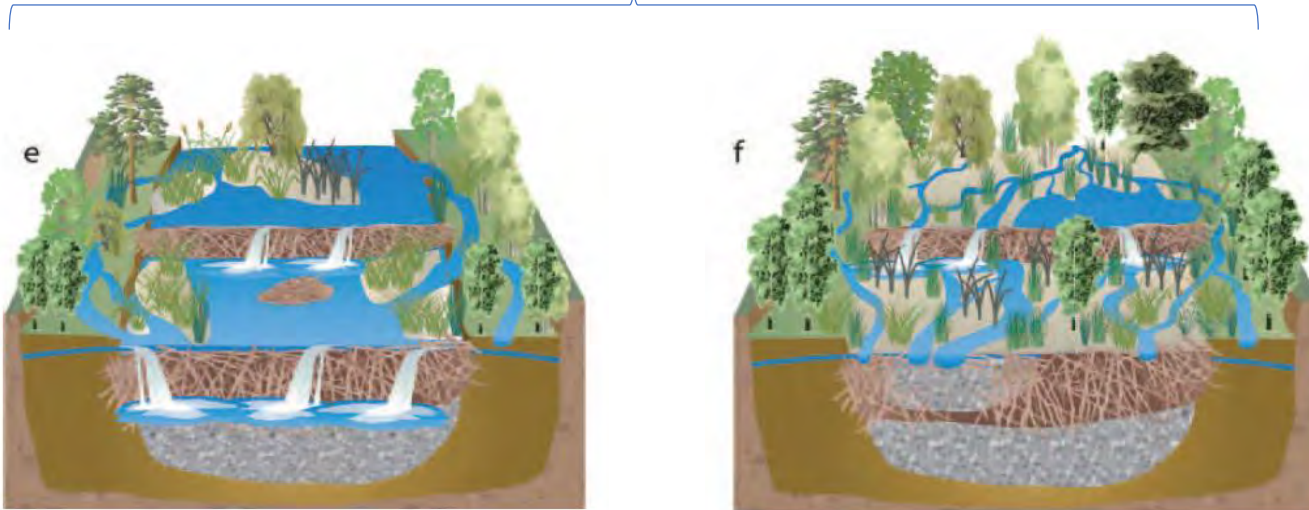
Project Components

- Remove failed bridge: Old Muddy Creek Road
- Lift stream to floodplain terrace
- Install RSC grade control



Beaver inspired regeneration

Sand-Seepage Wetland



Source: Fitch, L. 2016. Caring for the Green Zone: Beaver – Our Watershed Partner. Lethbridge, Alberta: Cows and Fish – Alberta Riparian Habitat Management Society





1. Remove failed bridge at Old Muddy Creek Road

200

Feet



Fill stream channel to within 0-2 feet of floodplain

200
Feet





Let er rip!







2/2017



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N

End Result

- Project constructed in late 2015/early 2016
- A LOT of water in contact with the landscape
- Major changes to groundwater/surface water interaction
- Water surface is highly variable with seasonal water levels

We'll check it out later!

...On to the Monitoring!





Questions/Contact

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