Parkerson Mill Creek Restoration:
Building Bridges with Water Resources

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Brief overview of stream enhancement and restoration

Introduction to Parkerson Mill Creek

Case study

Next up
Stream Ecosystems - What makes a stream a stream?
Stream Ecosystems

Channel (bed & banks)  Floodplain

Water & Sediment  Plants & Animals
Streams and floodplains experience disturbance
Water Quantity Disturbances

Altered stream flows

- Too much
- Not enough
- Flashiness
More Runoff Arriving Faster

Flow Rate, cfs

Time, hours

Courtesy NEMO, Univ. of CT
Water Quality Disturbances

- Increased water temperatures
- Decreased dissolved oxygen
- Increased pathogens
- Increased nutrients
- Increased sediment
- Increased toxins
- Increased litter
Plant Disturbances

Competition with invasive, exotics

Loss to wildlife / maintenance
Water + Plant + Soil + Physical Disturbances = Loss of Stream Functions

- Transport Water
- Transport Sediment
- Aquatic Habitat
- Terrestrial Habitat
- Safe Water Supply
- Recreation & Aesthetics
Enhancement and Restoration

Enhancement – Modification of specific structural features ... to increase one or more functions based on management objectives (Gwin, et al. 1999)

Restoration – Process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed (SER)
Stream Improvement Elements

Maximize Floodplain

Deeply rooted native vegetation

Incorporate in-stream structures
Water + Plant + Soil + Physical Enhancement =
Gain of Stream Functions

- Transport Water
- Transport Sediment
- Recreation & Aesthetics
- Safe Water Supply
- Aquatic Habitat
- Terrestrial Habitat
Concerns:
- erosion (infrastructure)
- water quality
- aesthetics
- habitat quality
Parkerson Mill Creek Watershed Plan Grant

Funding from the Section 319 non-regulatory outreach section of ADEM

Grant awarded to Auburn University Water Resources Center (1 of 5 projects – supporting Center of Watershed Excellence)

Project Contact: Alabama Cooperative Extension System

Awarded December 2009
Completed December 2010
Implementation 2011
Completion 2014
Complementary Goals: Improved Water & Habitat Quality

**Recreation**

To establish and maintain existing trails and access to Parkerson Mill Creek and its tributaries where desired and feasible.

**Education**

Promote stakeholder education on best management practices and to use Parkerson Mill Creek as an outdoor classroom.
Project Team

- Engineers
- Contractors
- Designers
- Ecologist
- Biologists
- Utilities
- Local, State and Federal Agencies

- Planners
- Landscape Architects
- Horticulturists
- Forestry
- Educators
- Elected Officials
- Watershed Groups
- Community Members
2014 Project Overview:

Funding Auburn University, ADEM Section 319

Goals include improved stability, improved water quality & habitat, aesthetics, outdoor classroom, public education

Construction June-July 2014

105 m length

Stilling basin

3 boulder cross vanes

Floodplain bench

Native vegetation
Setting boulder cross vanes
Hydromulch –
Temporary and permanent seed
Erosion control blanket (coir)
Project Overview:
Funding Auburn University
Construction January 2019
  3 stormwater outfalls
  6 boulder vanes
  6 constructed riffles
toe wood
Flexamat
Floodplain bench – 2 stage channel
Native vegetation – intentional design
Parkerson Mill Creek Tributary, Paterson Greenhouse

2016
Parkerson Mill Creek Tributary, Paterson Greenhouse

2024 March

Funding: Auburn University, Facilities
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