



NKU

## Stream Restoration Program

Scott Fennell, PE

Director / Senior Engineer

Northern Kentucky University

Center for Environmental Restoration





# Agricultural Land and Stream Restoration

## Livestock Management and Stream Exclusion



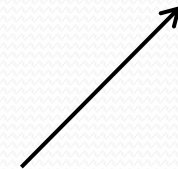
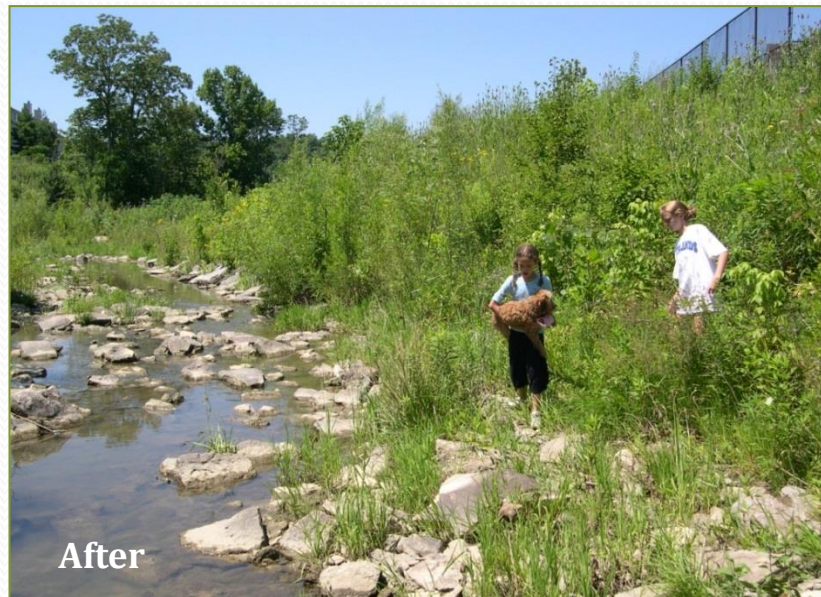
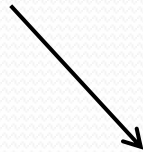


# Agricultural Land and Stream Restoration Breached Dam & Sediment Removal with Stream Restoration





# Bank Stabilization Bank Sloping, Rock Toe, and Re-vegetation



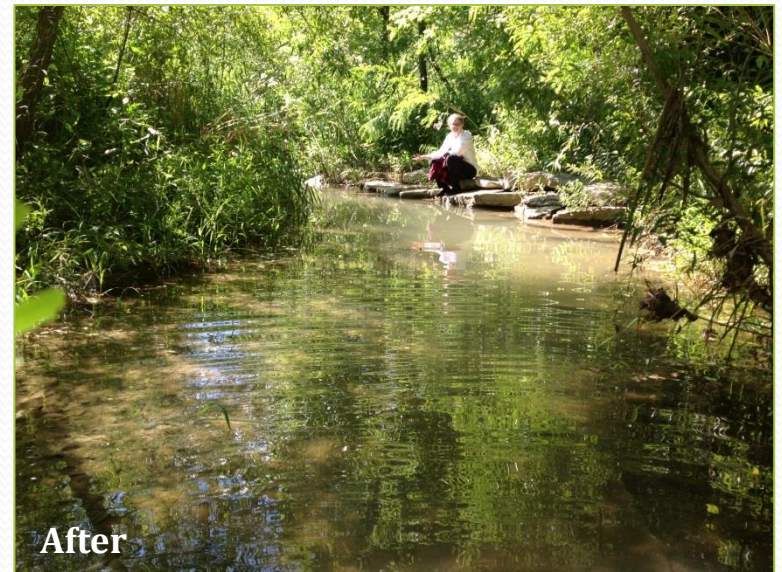


# Bank Stabilization Rock Deflectors, Bank Sloping, and Re-vegetation





# Bank Stabilization Stone Wall Bank Protection & Salamander Condos



Adair WMA





# Channel Stabilization

## Stone Grade Control Structures at Headcut Locations





# Stream Rehabilitation Channel Restoration through Abandoned Development Site Fill





# Stream Re-establishment

## Meander and Riffle / Pool Restoration





# Stream Re-establishment Channel Restoration through Demolition Debris Landfill





# Stream Re-establishment Lake Removal and Meandering Channel Restoration



Before



After



During



After



# Stream Re-establishment Sinuosity and Floodplain Restoration on Channelized Stream



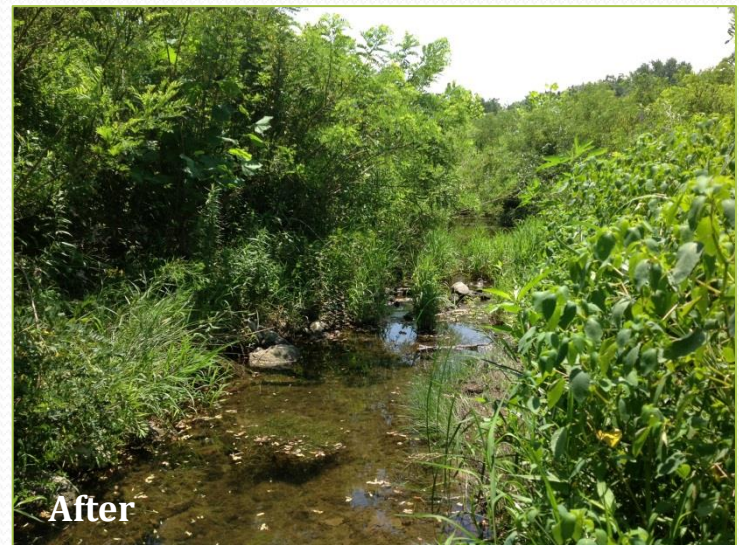
Before



After



During



After



# Wetlands Establishment

## Stormwater Wetlands



Bentwood



Boone Woods



Burlington Elementary