

Engineering With Nature

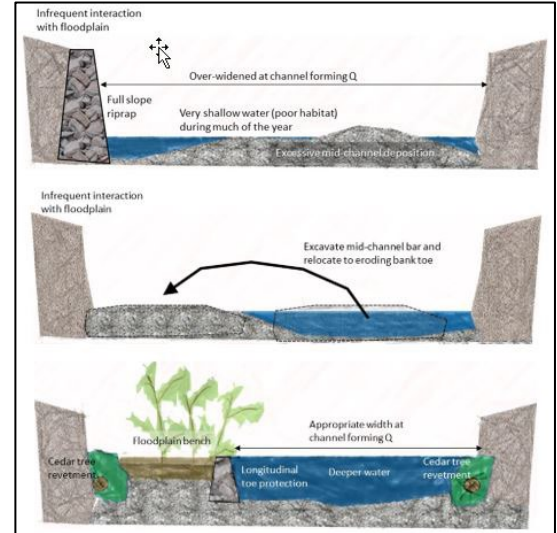
Project Fact Sheet



Developing Streamlined Regional Design and Permitting for Bank Stabilization Projects Incorporating EWN® Principles

Background

Gravel bed rivers in the Missouri Ozarks are notoriously unstable. At many locations, channels are depositing sediment in the middle of over-widened sections while eroding both banks (see figure on left). Previously, landowners would manually remove the gravel sediments from the channel center and place them on the eroding banks, as well as mow any vegetation growing on the gravel deposition. However, these unpermitted actions perpetuated the channel instability and after a local landowner was fined for not obtaining a permit, landowners have been reluctant to continue these actions. While bank stabilization is often a needed engineering intervention, environmental permitting requirements are seen by many landowners as an obstacle. This creates an opportunity to develop streamlined EWN® design methods and permit processes for bank stabilization projects.



Objectives

The goal of this project is for individual landowners to be able to use readily obtainable information for their river sections to generate an effective, easy-to-review and easy-to-permit plan that will both stabilize the eroding banks and increase the aquatic and riparian habitat. The objectives of this project are to (1) create regionalized approaches to EWN® methods for riverbank stabilization in Missouri Ozark streams, together with written handbooks and associated online tools, (2) establish a streamlined permit process with all three USACE Districts that regulate activities in the Missouri Ozarks, and (3) hold a training session for local landowners, State agencies, and Farm Bureau employees.

Approach

The technical approach will be to (1) analyze different bank stabilization methods and identify the ones that maximize multiple benefits (prevent erosion, provide riparian habitat, improve aquatic conditions, etc.), (2) identify the range of values that describe the Missouri Ozark stream parameters (bank height, channel width, velocity, etc.), (3) using the results from steps 1 and 2, develop bank stabilization design methods specific for the Missouri Ozark streams, (4) develop a simple guidance with checklists and online tools for applying the design methods, (5) work with the permitting agencies to develop a streamlined permit process for the EWN® bank stabilization methods, and (6) develop training materials for the training sessions.

Outcomes

This project will develop guidance to create an effective, easy-to-review and easy-to-permit plan for landowners in the Missouri Ozarks who want to stabilize eroding channels and create healthy aquatic and riparian habitat. This EWN® guidance has applicability to other bank stabilization projects that USACE undertakes through various programs and will also benefit the stream restoration and sediment management community at large. This project provides technical expertise in working with the State and Federal permitting agencies to facilitate the implementation of EWN® practices.



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