

Restoring Streams with Low Cost and Low Impact Solution

Located in the center of Anne Arundel County, the South River Greenway is one of the last remaining intact forest tracts and stream valley wetlands in the county including 100 miles of streams, 800 acres of wetlands and 6,000 acres of forest. The tiny streams meandering through this area eventually drain into the South River.

A collaborative effort is underway to protect and restore the wildlife and natural resources here. It is an especially important area to forest interior birds and reptiles. The American eel is currently found in the streams in the watershed, and river herring historically spawned here.

Just as important are the ecosystem functions provided by the intact forest such as cooling and slowing stream water and filtering stormwater entering the South River and, ultimately, the Chesapeake Bay.

Of particular importance is the restoration of impaired streams. Streams often become damaged when the volume and velocity of runoff increases due landscape changes that result in more impervious (hard) surfaces. To adjust to more runoff, a stream will first try to meander laterally.

If there are trees on the stream banks, as there are in most cases in the South River Greenway, the water erodes the stream bed vertically, resulting in a headcut. Headcuts are major sources of sediment in the headwaters of the South River. Habitat for fish, macro invertebrates and amphibians is also degraded due to sediment from headcuts.

The U.S. Fish and Wildlife Service developed relatively inexpensive method to repair headcuts that can be replicated throughout the watershed. As a pilot project, 10 headcuts were stabilized using low cost and low impact techniques.

Headcut stabilization is often done with rocks, but logs were used here to keep costs down and to minimize impacts to the streams and forest. The logs are placed in the stream bed at a precise angle. Once the headcuts cease sending sediment downstream, stream banks begin to heal and revert to an 'angle of repose' that is conducive to supporting plant life.

Though the logs can only be expected to last about fifty years before disintegrating, the hope is by the time the logs disappear, tree roots have knit together the stream banks and erosion has stopped.

This method differs from other restorations that involve filling in the stream bed and restoring the floodplain. Other methods can cost hundreds of dollars per linear foot. With so many headcuts in the South River Greenway, a lower-cost method was needed to address the problem of sedimentation.

Once the logs were in place, volunteers replanted the restored stream banks with more than 40 native tree saplings, 80 shrubs and 850 ferns. The roots help stabilize the soil and the native trees and plants provide habitat for forest interior birds, turtles, frogs and other wildlife.

The project is sited within the 630-acre Bacon Ridge Natural Area, which is owned by the Anne Arundel County and subject to a conservation easement with Scenic Rivers Land Trust and the Maryland Environmental Trust. Funding for this project was provided by Anne Arundel County, and National Fish and Wildlife Foundation. U.S. Fish and Wildlife Service provided in-kind services.