



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Tennessee

Best Management Practices Reduce Siltation and Contaminated Runoff

Waterbody Improved

Runoff from livestock operations and unrestricted grazing was contributing high levels of sediment and nutrients to Blue Spring Creek in Coffee County, Tennessee. Education and the introduction of best management practices (BMPs), including fencing, water facilities for cattle, and waste management systems, have helped to eliminate existing water quality problems, allowing the creek to be removed from Tennessee's 303(d) list.

Problem

Beef production is a major enterprise in Coffee County, Tennessee, and livestock are raised throughout the region to supply this industry. Poor nutrient management plans and grazing practices resulted in runoff that contained sediment and nutrients entering the stream untreated. Based on the results of a macroinvertebrate sampling and habitat assessment that demonstrated values below expectations for streams in the Eastern Highland Rim ecoregion, the Blue Spring Creek was listed on Tennessee's 2002 303(d) list as having "other habitat alterations" due to nonirrigated crop production.

Project Highlights

Educational efforts have raised awareness about the water quality problems associated with unrestricted livestock grazing. Farmers have been willing to help improve water quality by installing BMPs on their land. Exclusion fencing was used to keep livestock out of natural water sources and off streambanks. As a result, native vegetation has returned to streambank areas, providing habitat for wildlife and serving as a natural filter strip.

Alternative watering systems provide livestock with water in areas with no stream access. Frost-free water tanks have been particularly

successful in providing better water quality for humans, livestock, aquatic plants, and animals. The soil in heavy-use areas surrounding alternative water ponds is stabilized with geotextile material to further prevent erosion.

Animal waste management systems, such as holding ponds, allow for proper waste disposal. Such systems take care of contaminated runoff, as well as wash water and flush water from dairy or swine operations.

Pasture seeding with a mix of fescue and white clover, in combination with a nutrient management plan, provided effective erosion control on area farms.

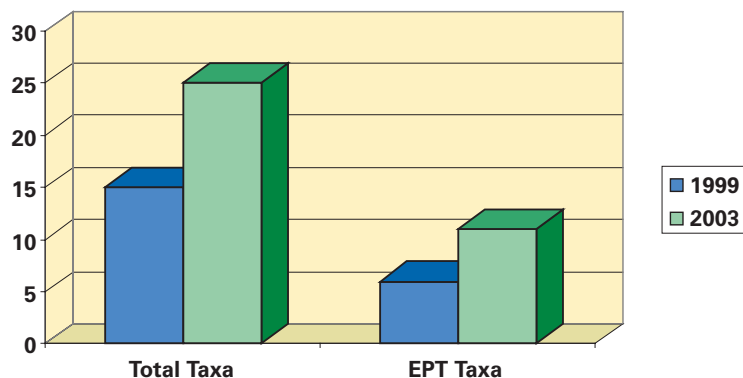
Results

By 2003 biological integrity and habitat at Blue Spring Creek had improved, as measured by the higher diversity and types of macroinvertebrates such as insects, crayfish, snails, and clams—indicators of good water quality. Almost twice as many EPT families (a category of insects used to measure water quality) were present in 2003 (11 EPT) than in 1999 (6 EPT), and 25 different taxa were collected in 2003 as compared to 15 different taxa found in 1999. Eight of these families are intolerant of pollution. These metric values represent the

highest score possible (15) out of a family-level biological reconnaissance (biorecon) index that considers scores from 11 to 15 indicative of a non-impaired biological community. The habitat assessment score had improved from 114 in 1999, which is considered inadequate in the ecoregion, to a score of 136—well above the target habitat score of 123, which indicates a healthy biological population in the ecoregion. As a result, Blue Spring Creek was removed from Tennessee’s 303(d) list in 2004.

Partners and Funding

This project included support from the U.S. Department of Agriculture Natural Resources Conservation Service and the Coffee County Soil Conservation District, which designed and approved the animal waste management systems. The project costs totaled \$110,219, including funding through the Agricultural Resources Conservation Fund (ARCF) and \$8,733 of Clean Water Act section 319 cost-share funding, which was used to cover the costs of exclusion fencing, alternative water facilities, and pasture seeding.



Number of families in the pollution-sensitive group EPT found at Blue Spring Creek in Coffee County between 1999 and 2003.



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