



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Tennessee

Pasture and Hay Planting Improve Wades Branch Water Quality

Waterbody Improved

Runoff from pasture grazing cattle resulted in excess sediment entering and degrading a 7.2-mile segment of Wades Branch. This led to the listing of the segment as impaired in 1998 and subsequent years for siltation and habitat alteration. In 2002 and 2003, best management practices (BMPs), including pasture and hay planting, reduced sediment loads and resulted in the removal of Wades Branch from the 2004 303(d) list of impaired waters.

Problem

Wades Branch is located in the Stones River Watershed in Rutherford County, Ecoregion 71i. The 7.2-mile impaired segment, which runs from Stones River to a Dunaway Chapel Road Forks, was added to Tennessee's 2002 303(d) list of impaired waters for not meeting state water quality standards for siltation and habitat alteration to fully support its designated use classification of fish and aquatic life. The standard states that there shall be no distinctly visible solids, scum, foam, oily slick, or the formation of slimes, bottom deposits or sludge banks of such size or character that may be detrimental to fish and aquatic life, and the instream habitat within each subcoregion shall be generally similar to that found at reference streams. Excess siltation alters the in-stream conditions by covering substrate with a layer of sediment that reduces habitat for benthic (bottom-dwelling) organisms that provide food for fish.

A siltation and habitat alteration total maximum daily load (TMDL) was completed for Wades Branch, by Tennessee's Department of Environment and Conservation, and approved by EPA in 2002.

Project Highlights

In 2000, 24 acres were renovated by replanting hay and pasture grasses within the

watershed (Figure 1). In 2003, 21 acres of pasture lands along Wades Branch were renovated. The re-introduction of native plant species and more adaptable species not only helps to eliminate soil erosion and improve water quality, it also improves grazing livestock nutrition.

Results

Using EPA's rapid bioassessment protocol III (RBPIII), state biologists calculated a biological reconnaissance score (biorecon) for the Branch, which is used as a measure of compliance with water quality standards for the beneficial use of fish and aquatic life support. Biorecon is one tool used to recognize stream impairment as judged by species richness measures, emphasizing the presence or absence of indicator organisms without regard to relative abundance. The biorecon index is scored on a scale from 1 to 15. A score of less than 5 is regarded as very poor. A score of more than 10 is considered good. The principal metrics used are the total macroinvertebrate families (or genera), the number of families (or genera) of mayflies, stoneflies, and caddisflies (EPT), and the number of pollution intolerant families (or genera) found in a stream. The biorecon results for Wades Branch indicated 11 EPT families (pollution sensitive species), 8 pollutant intolerant species, and 26 total

families. Using this scoring system for biorecons, this stream segment scored a 15. The stream segment got a habitat score of 125, which is better than the established habitat goal for this region. The stream segment has improved greatly since last assessed and consequently resulted in the removal of this 7.2-mile segment of Wades Branch from the 2004 303(d) list of impaired waters.

Partners and Funding

The Rutherford County Soil Conservation District implemented the BMPs using \$1,807.41 provided through cost-share from section 319 grant pool projects. In addition, the Tennessee Agricultural Resources Conservation Fund (ARCF) provided \$2,000 in funding.

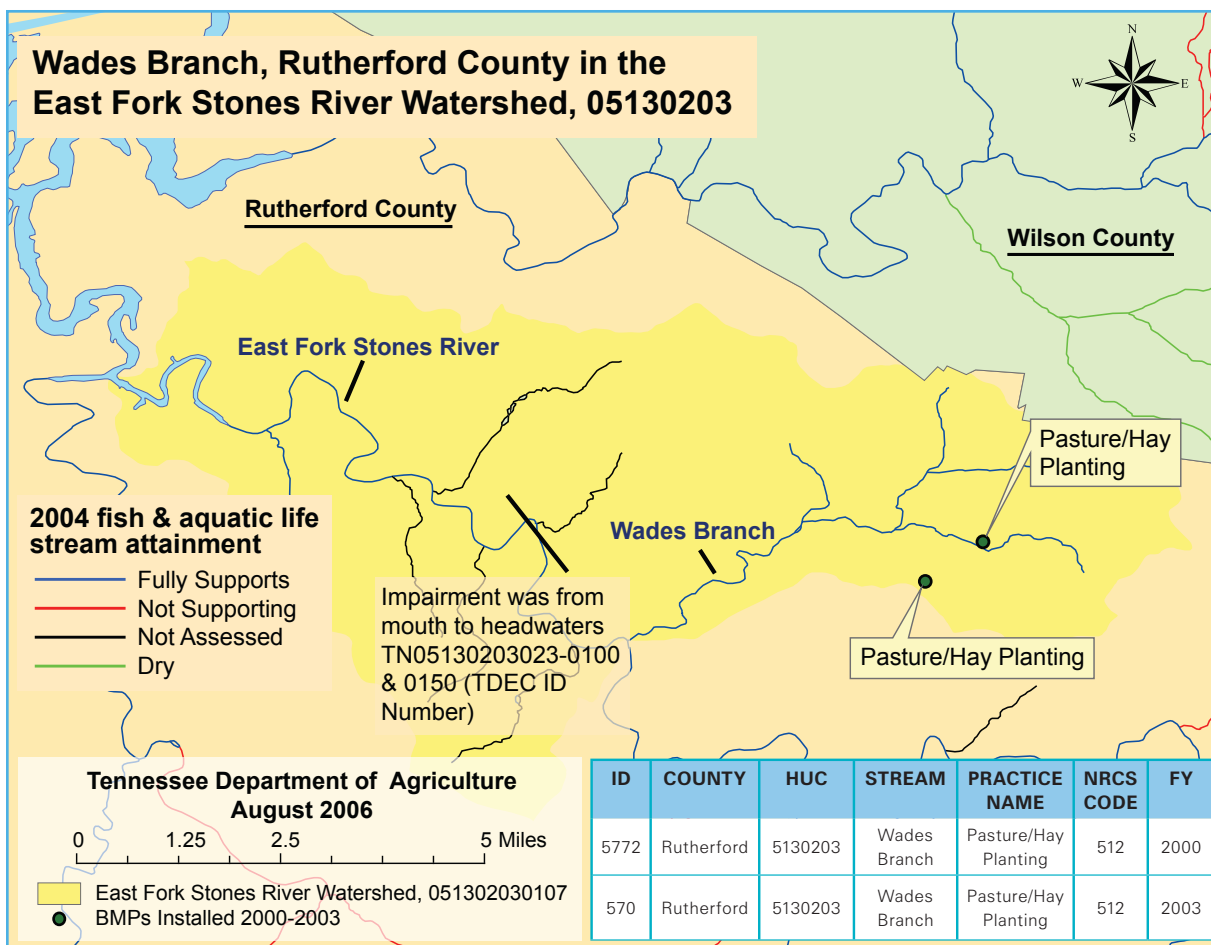


Figure 1. BMPs implemented in the East Fork Stones River Watershed (051302030107) 2000–2003



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