Section 319
NONPOINT SOURCE PROGRAM SUCCESS STORY
Tennessee

Implementing Agricultural Best Management Practices Reduces Erosion and Siltation

Waterbody Improved

Erosion from poorly managed livestock pasture grazing areas and other agricultural activities around Slop Creek caused increased levels of sediment and siltation in the creek. As a result, the Tennessee Department of Environment and Conservation (TDEC) added a 1.7-mile segment of Slop Creek to the state's Clean Water Act (CWA) section 303(d) list of impaired waters because of siltation and habitat alteration. Landowners implemented agricultural best management practices (BMPs) to control erosion and restrict the cattle's access to the stream. Water quality improved, prompting TDEC to remove Slop Creek from Tennessee's list of impaired waters in 2008.

Problem

Slop Creek flows for 1.7 miles through an agricultural area just south of Morristown, Tennessee, in Hamblen County. Slop Creek is a tributary of Hale Branch, which flows into Bent Creek, which in turn empties into the Nolichucky River watershed. Pasture grazing and unrestricted livestock access to the stream altered the riparian (streamside) vegetative cover and increased siltation. Water quality biologic assessment surveys in 2000 indicated that Slop Creek did not support its designated use of fish and aquatic life, prompting TDEC to add it to Tennessee's CWA section 303(d) list of impaired waters in 2002.

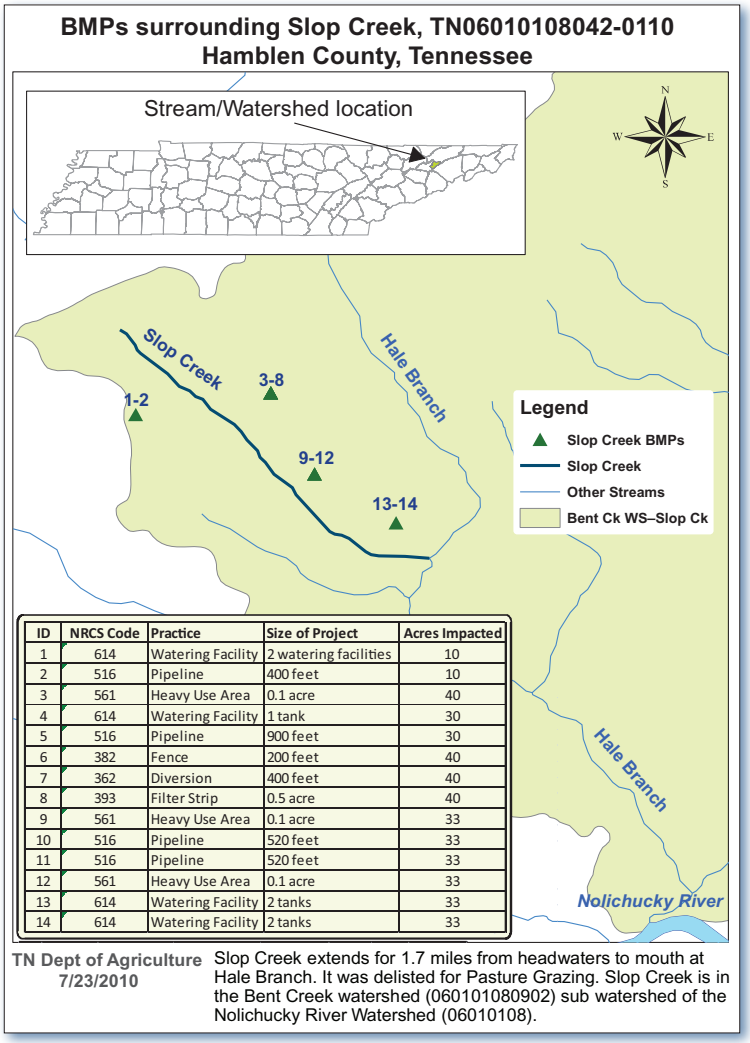
Project Highlights

Local landowners installed agricultural BMPs in the Slop Creek watershed using grants from both the CWA section 319 program and Tennessee's Agricultural Resources Conservation Fund. From 2003 to 2007, landowners used section 319 funds to install 200 feet of fencing that excludes cattle from the creek, 0.5 acre of filter strip (Figure 1), three alternative watering facilities, 1,300 feet of pipeline to carry water to new alternative watering facilities, 400 feet of water diversion, and 0.1 acre of heavy-use area protection that stabilizes land areas that people, animals or vehicles frequently use (Figure 2). In 2007 landowners used Agricultural Resources Conservation Fund grants to install other BMPs including four alternative watering

Photo courtesy of Central Basin RC&D.

Figure 1. Landowners installed filter strips along the creek to capture sediment and reduce siltation.

Figure 2. Landowners installed heavy-use area protection to stabilize the land and control erosion.



ID	NRCS Code	Practice	Size of Project	Acres Impacted
1	614	Watering Facility	2 watering facilities	10
2	516	Pipeline	400 feet	10
3	561	Heavy Use Area	0.1 acre	40
4	614	Watering Facility	1 tank	30
5	516	Pipeline	900 feet	30
6	382	Fence	200 feet	40
7	362	Diversion	400 feet	40
8	393	Filter Strip	0.5 acre	40
9	561	Heavy Use Area	0.1 acre	33
10	516	Pipeline	520 feet	33
11	516	Pipeline	520 feet	33
12	561	Heavy Use Area	0.1 acre	33
13	614	Watering Facility	2 tanks	33
14	614	Watering Facility	2 tanks	33

Figure 3. This map shows the location and types of BMPs installed in Slop Creek watershed.

facilities, 0.2 acre of heavy-use area protection, and 1,040 feet of pipeline. The locations and types of BMPs implemented in the Slop Creek watershed are shown in Figure 3.

Results

The new BMPs are helping to control erosion, reduce siltation and restore biological integrity in Slop Creek. In 2005 the TDEC established a Semi-Quantitative Single Habitat Assessment (SQSH) station at mile 0.1 at Slop Creek Road. SQSH is used as a measure of compliance with water quality standards for the beneficial use of fish and aquatic life. The principal metrics used are the total macroinvertebrate families (or genera); the number of families (or genera) of mayflies, stoneflies and caddisflies (collectively referred to as EPT—short for the order names Ephemeroptera, Plecoptera and Trichoptera); and the number of pollution-intolerant families (or genera) found in a stream. The SQSH scored 36 out of 42 on the Tennessee Macroinvertebrate Index—a very good score. The habitat assessment also received a good score of 132 out of 200. On the basis of this information, TDEC removed Slop Creek from the CWA section 303(d) list of impaired waters in 2008.

Partners and Funding

Slop Creek has benefited from $7,975 in CWA section 319 funding (including additional matching funds of $4,284). Tennessee's Agricultural Resources Conservation Fund provided $4,904 (plus another $2,658 in matching funds). Key partners were the Hamblen County Soil Conservation District for BMP assistance and the landowners for contributing the majority of the in-kind matching funds.

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For additional information contact:

Sam Marshall
Tennessee Department of Agriculture
sam.marshall@tn.gov • 615-837-5306