



NONPOINT SOURCE SUCCESS STORY

Tennessee

Concord Creek Habitat Benefits from Farming Best Management Practices

Waterbody Improved

Concord Creek, in the Harpeth River Headwaters watershed in Rutherford County, Tennessee, was added to Tennessee's 2002 Clean Water Act (CWA) section 303(d) list after agricultural activities contributed to habitat degradation. The Harpeth Conservancy, supported by three CWA section 319 grants, along with Tennessee's Agricultural Resources Conservation Fund (ARCF), assisted landowners with habitat protection and agricultural practices in the Harpeth River Headwaters watershed. By 2020, Concord Creek's habitat had improved, and a 13.65-mile segment of the creek was no longer listed as impaired on Tennessee's 2020 List of Impaired and Threatened Waters.

Problem

Concord Creek (TN05130204018 – 0200) is within the Harpeth River Headwaters watershed (051302040101) in Rutherford County, Tennessee (Figure 1). The designated uses for Concord Creek include fish and aquatic life, recreation, livestock watering and wildlife, and irrigation. Land use within the watershed is primarily agriculture (approximately 51 percent), including specialty crops (such as sod farming) and pasture grazing. Techniques such as farming to the waters' edge and allowing livestock free access to streams and rivers contributed to sedimentation and riparian habitat loss.

Concord Creek was first listed on Tennessee's 2002 CWA section 303(d) list for habitat alterations, siltation, and organic enrichment from agriculture and the removal of riparian vegetation. In 2004, Concord Creek remained listed for habitat loss and siltation due to pasture grazing and specialty row crop farming (specifically sod farming). The Tennessee Department of Environment and Conservation (TDEC) conducted a habitat survey in 2002, in which Concord Creek scored poorly at 97 (target score ≥ 112 .)

A total maximum daily load (TMDL) for the Harpeth River (including Concord Creek) for siltation and habitat alteration, developed by TDEC and others, was approved by the U.S. Environmental Protection Agency on May 10, 2002. The plan estimated that a decrease of 37.3 percent of the siltation load would be required to achieve the TMDL.

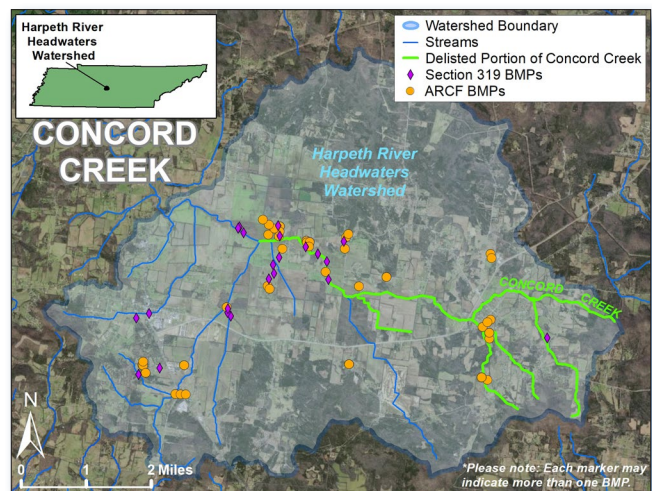


Figure 1. Concord Creek is in central Tennessee.

Story Highlights

In fiscal years 2003, 2005, and 2014, the Harpeth Conservancy (previously known as the Harpeth River Watershed Association) was awarded CWA section 319 grants for the implementation of best management practices (BMPs) in the Harpeth River Headwaters (including Concord Creek). With the assistance of the CWA section 319 grants, a total of 37 agricultural and habitat protection BMPs were installed in the Harpeth River Headwaters watershed, including livestock exclusion fencing, stream crossings, heavy use areas, watering facilities, streambank stabilization,

and riparian forest buffers (Figure 2). Tennessee Department of Agriculture's (TDA) state-based ARCF incentives program assisted with the implementation of 77 additional agricultural BMPs in the Harpeth River Headwaters watershed, including fencing, heavy use areas, livestock pipelines, and forage and biomass plantings (Table 1).

Results

During the 2018 sampling cycle, TDEC returned to Concord Creek to perform a Tennessee Macroinvertebrate Index (TMI) survey and a habitat evaluation. The TMI score was 36 (target score ≥ 32), and the habitat score had improved from 97 (in 2002) to 141. Tennessee has narrative criteria for siltation; therefore, once the habitat and macroinvertebrate communities meets state standards, it is accepted that the water quality has sufficiently improved. Concord Creek was removed from Tennessee's 2020 List of Threatened and Impaired waters for siltation and habitat alterations. Concord Creek is now fully supporting for all designated uses.

Partners and Funding

The Harpeth Conservancy was awarded three CWA section 319 grants for protection and restoration efforts in the Harpeth River, of which \$119,648 was invested in BMPs in the Harpeth River Headwaters watershed (including Concord Creek). Partners that assisted the Harpeth Conservancy included the Center for Watershed Protection, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the Tennessee Valley Authority, U.S. Geological Survey, and Rutherford County Soil Conservation District (SCD). Tennessee's ARCF program has contributed \$88,494 for the implementation of agricultural BMPs in the Harpeth River Headwaters watershed. Rutherford County SCD and USDA NRCS partnered with TDA to assist with practice design and installation.



Figure 2. Alternative watering facility and heavy use area installed near Concord Creek.

Table 1. BMPs installed within the Harpeth River Headwaters watershed.

Practice name	Units installed		Total units installed
	CWA 319 funds	ARCF	
Cover crop	-	34 ac	34 ac
Fence	6 (6,540 ft)	10 (11,877 ft)	16 (18,417 ft)
Riparian forest buffer	8	-	8
Forage and biomass planting	-	7	7
Pipeline	1 (1,808 ft)	14 (11,260 ft)	15 (13,068 ft)
Pumping plant	-	2	2
Heavy use area	7	17	24
Stream crossing	2	1	3
Streambank protection	4 (375 ft)	-	4 (375 ft)
Channel stabilization	1 (300 ft)	-	1 (300 ft)
Watering facility	8	23	31
Watering well	-	2	2



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