

NONPOINT SOURCE SUCCESS STORY

Conservation Practices Improve Fish Community in Hogshooter Creek

Waterbody Improved

An assessment of the fish community in Hogshooter Creek in 2006 revealed a poor condition, resulting in placement on Oklahoma's

Clean Water Act (CWA) section 303(d) list of impaired waters in 2008. Pollution from grazing lands contributed to this impairment. Implementing conservation practice systems (CPs) to promote better agricultural land management decreased pollutant runoff to the creek and improved the fish community. As a result, Oklahoma removed Hogshooter Creek from its 2014 CWA section 303(d) list for fish impairment. Hogshooter Creek now partially supports its fish and wildlife propagation (FWP) designated beneficial use.

Problem

Hogshooter Creek is a 20.02-mile stream flowing through Washington and Nowata counties before joining the Caney River (Figure 1). Land use in the 28,000-acre watershed is about 79 percent grazing lands and 14 percent forested. Less than 2 percent of the watershed is cropland.

Challenges with grazing lands management contributed to listing the stream as impaired for the fish community in 2008 when the 2006 fish assemblage produced an Index of Biotic Integrity (IBI) score of 23. Waterbodies in this ecoregion are considered to not be supporting the FWP beneficial use if the IBI score is less than 24. Oklahoma added Hogshooter Creek (OK121400010300_00) to the 2008 CWA section 303(d) list for nonattainment of its FWP designated beneficial use.

Story Highlights

Landowners in the watershed worked with the Caney Valley and Nowata County conservation districts, the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and the Oklahoma Conservation Commission (OCC) to implement CPs through Oklahoma NRCS's Environmental Quality Incentives Program (EQIP) and general conservation technical assistance program, and Oklahoma's Locally Led Cost Share Program (LLCP). CPs installed between 2003 and 2017 focused on reducing erosion and pollutant runoff from cropland and grazing lands in the watershed (Table 1).



Figure 1. Hogshooter Creek is in northeastern Oklahoma.

Results

The OCC documented improved water quality in Hogshooter Creek due to installation of CPs. The installed CPs worked to decrease the runoff of pollutants to downstream waterbodies. Monitoring data compiled for the 2008 integrated report showed that Hogshooter Creek fish community assessment had produced an IBI score of 23 with only 14 species present and 294 individuals counted, 89 percent of which were from pollution-tolerant species with only one intolerant species present.

The 2014 assessment produced an IBI score of 37, which exceeds the score of 24 necessary to indicate FWP beneficial use support (Figure 2). The assessment

Practice name	Amount installed
Brush management	484 acres
Pond	11
Nutrient management	257 acres
Conservation crop rotation	21 acres
Fence	2,592 feet
Integrated pest management	10,413 acres
Herbaceous weed treatment	1,777 acres
Prescribed grazing	17,133 acres
Prescribed burning	97 acres
Forage harvest management	857 acres
Upland wildlife habitat management	1,726 acres
Riparian forest buffer	161 acres
Wetland wildlife habitat management	3 acres

Table 1. CPs installed in the Hogshooter Creek watershed.

showed 21 species and 814 individuals counted, 58 percent of which were from tolerant species. Five intolerant species were represented, including the redfin darter (Figure 3). Based on these data, Oklahoma removed Hogshooter Creek from the CWA section 303(d) list for fish communities in 2014. The creek is in partial attainment of its FWP beneficial use.

Partners and Funding

The OCC monitoring program is supported by U.S. Environmental Protection Agency (EPA) CWA section 319 funding at an average annual statewide cost of \$1 million. Approximately \$500,000 in EPA 319 funds support statewide water quality educational efforts through Blue Thumb. Approximately \$249,000 of these federal and matching state funds have been devoted to Hogshooter Creek. From 2006 to 2017, NRCS supplied approximately \$45,000 for implementation of CPs in the watershed through the NRCS EQIP. Additional funds were provided through NRCS Wetlands Reserve Program. The state LLCP provided \$15,870 matched by \$32,361 from landowners. In addition, many practices were funded by landowners based on recommendations through the NRCS general technical assistance and conservation planning.



Figure 2. Fish community structure improved as landowners implemented voluntary CPs.



Figure 3. The pollution-intolerant redfin darter was found in Hogshooter Creek during the 2014 assessment.



U.S. Environmental Protection Agency Office of Water Washington, DC

EPA 841-F-18-001N September 2018

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