

**FY 2001 Extended Little Deep Fork
Implementation Project**

FINAL REPORT

OCC Task #01-005

Oklahoma Conservation Commission
Water Quality Division
2800 N. Lincoln Blvd., Suite 160
Oklahoma City, OK 73105

INTRODUCTION:

The Upper Little Deep Fork basin is located in the southwest corner of the northeast quadrant of Oklahoma (Figure 1). It covers approximately 39,500 ha (97,500 acres) and lies almost entirely in Creek County, with the western 2000 ha (5,000 acres) stretching into neighboring Lincoln County. Flowing generally east, Little Deep Fork Creek merges with the Deep Fork River, a tributary of the North Canadian River. Major industrial activities in the basin include oil/gas exploration and agriculture, comprising hay, grazed cattle, and small grain production. In general, the basin is approximately 40% forest and 55% grasslands, with the remaining 5% urban or other.

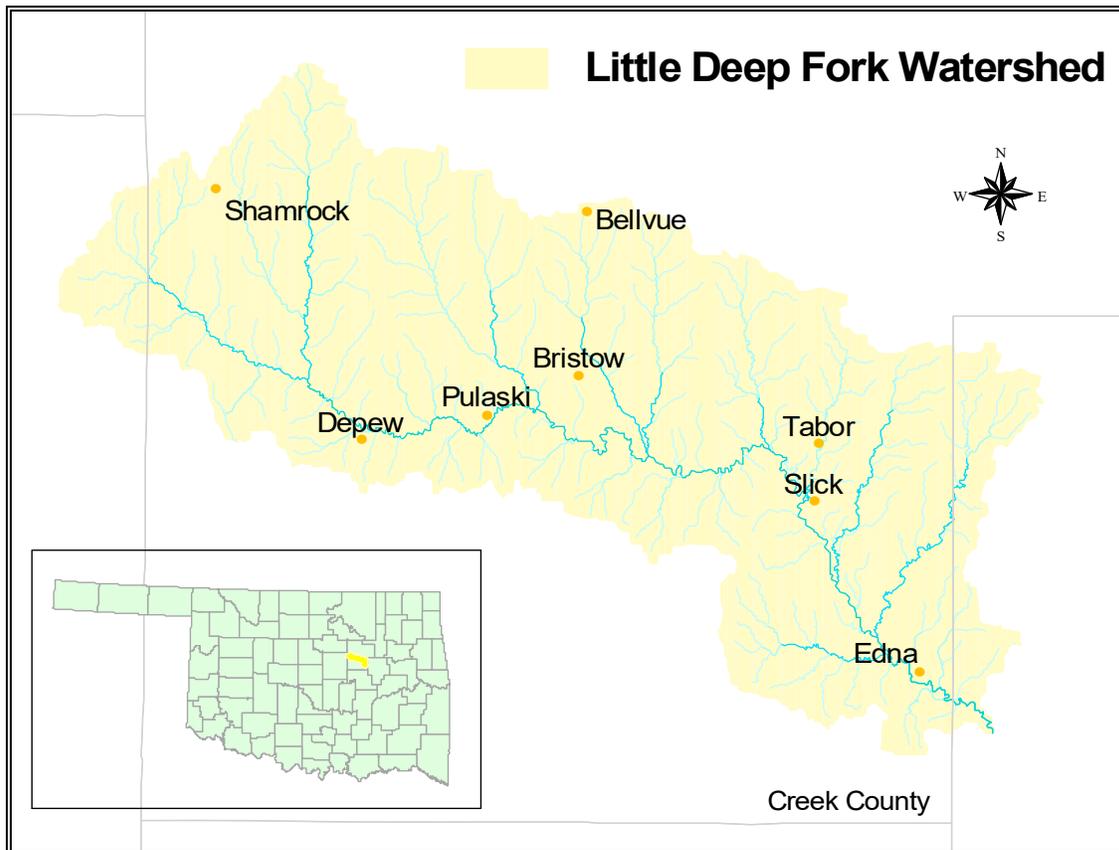


Figure 1. Little Deep Fork watershed.

The OCC initiated a project in the Little Deep Fork Basin in 1995 with the objective of reducing nutrients and sediment to the creek via Best Management Practice (BMP) implementation and education. Little Deep Fork Creek (OK520700060010) was listed on the 1998 303(d) list as being impaired by nutrients, pesticides, siltation, suspended solids, and unknown toxicity. Suspended solids, phosphorous, chlordane, and turbidity were cited as pollutants of concern. Sources for this stream were listed as storm sewers, surface runoff, petroleum activities, wastewater, non-irrigated crop production, specialty crops, pastureland, and rangeland. Initial investigations within the watershed and reconnaissance along the creek in selected areas indicated significant livestock impacts to the stream. Cattle had complete access to the streambed in many areas of

the watershed, and the stream was a major loafing area for cattle and often the sole source of livestock water. Densities as high as one cow flop per square meter over a 300 meter segment of the stream were observed by OCC field investigators.

As a result of these initial findings, establishment of riparian areas and exclusion of cattle from streams was a high priority. At the end of the 1995 project, funds were still available, so an extended project was initiated to allow further BMP implementation. Specifically, three additional cooperators participated in the extended project from 2001 to 2005.

PROJECT OBJECTIVE:

The intent of this project was to extend the implementation started in the FY1995 319(h) Task 400 (OCC Task 66) *Little Deep Fork TMDL Support and BMP Implementation*. "Before and after" photos were taken to document the effects of BMPs intended to protect water quality at the sites of implementation.

RESULTS:

The project period was from October 2001 through December 2005. Due to competition from the USDA's EQIP cost share program and the OCC's locally led cost share program, only three cooperators participated in this project. The lack of previous environmental projects in the immediate and surrounding areas may also have contributed to the minimal participation in the extended Little Deep Fork Project. In spite of this lack of interest, three landowners with land in high priority areas in the watershed participated, and each demonstrated practices vital to protecting the top priority in the project, the riparian areas. Initial studies had indicated a direct and significant impact from livestock, which made establishment of riparian areas and exclusion of cattle from streams the highest priority. By implementing specific practices like fencing, exclusion, and alternate water supplies, the landowners and their neighbors observed the ease and benefits of protecting water quality. Figure 2 shows the location of each participant in the watershed (by Section, Township, Range), and Table 1 details the BMP implementation by each cooperator (as identified by the numbers 1, 2, or 3 in Figure 2).

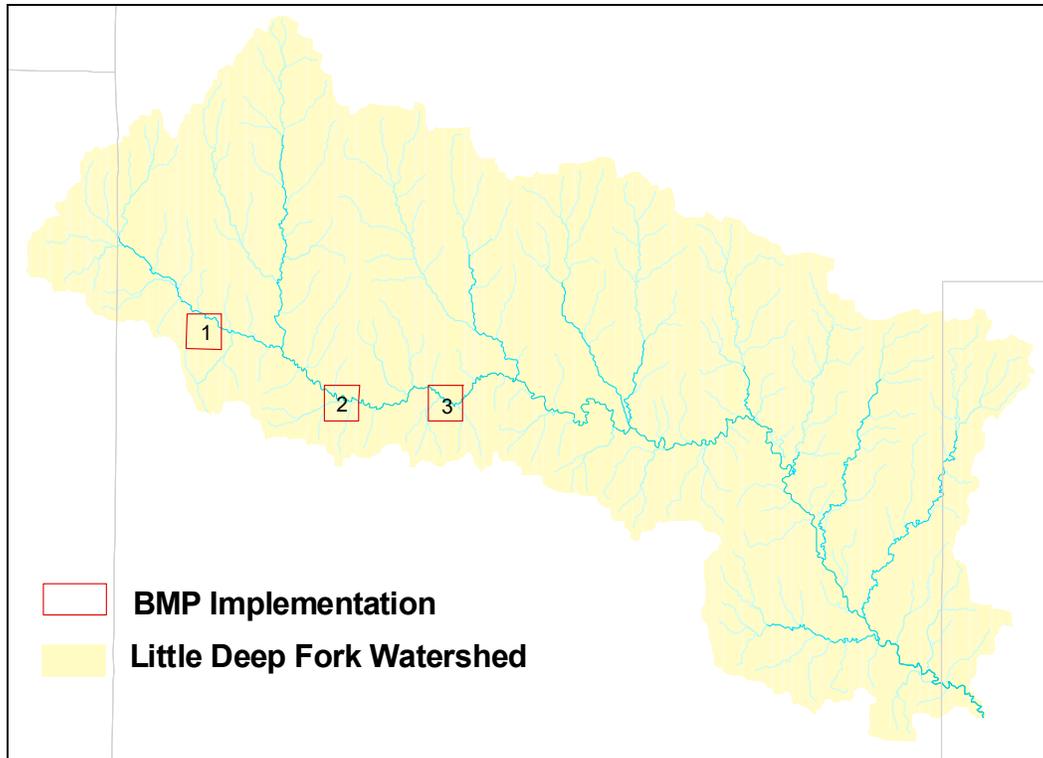


Figure 2. Location of BMP implementation (mile section).

Table 1. Summary of BMP implementation in the Extended Little Deep Fork project.

Landowner	Practice Description	Units of Installation
1	Offsite Watering - Pond	5994.5 cubic yards
2	Riparian Fencing	1644 linear feet
	Riparian Area Management--Total Exclusion	9 acres
	Riparian Area Management--Exclusion & Haying	43 acres
	Concrete Freeze Proof Tank with Gravel	1
3	Riparian Fencing	5370 linear feet
	Riparian Area Management--Exclusion & Haying	127 acres
	Offsite Watering - Pond	2185 cubic yards

The OCC coordinated closely with the Creek County Conservation District to ensure implementation of the farm plans and that matching funds were secured and documented for the participants involved. The total project cost was \$37,276.30 of federal funds.

Periodic inspections were made to confirm that fences were maintained, gates locked, and livestock excluded from the riparian areas. This was necessary to certify maintenance and completion prior to annual incentive payments.

Photos taken soon after implementation of BMPs and in following years were used to estimate changes in vegetative cover at the demonstration sites. Examples of each of

the BMPs installed in this project are shown below. Paired photos are taken from approximately the same perspective, although one may be a little closer than the other in some cases. The photos for sites 1 and 2 show increased vegetation in the protected region relative to the area with cattle access. The remaining photos simply demonstrate the BMPs which were installed: riparian fencing with haying allowed and alternative water supplies.

Through the implementation of these practices, additional riparian area in the Little Deep Fork watershed was protected, which should augment the success of the larger 1995 project and should eventually result in significant water quality improvement.

Installation of fencing for establishment and protection of a riparian zone—total exclusion (note that the difference in vegetation density on the right relative to the left has increased in 2005 as compared to 2002):



Site 1: November 21, 2002 (just after installation)



Site 1: October 18, 2005



Site 2: November 21, 2002 (just after installation)



Site 2: October 18, 2005

Installation of fencing for exclusion with haying:



Site 3: March 25, 2005



Site 3: October 19, 2005

Alternative water supply for livestock:



5994.5 cubic yard pond



2185 cubic yard pond



Freeze-proof tank