

Woods Creek

SE NW NW

Section 34-3N-23E

LeFlore County

N 34.6927°

W 94.8824°

WBID#: OK410310-02-0050D

Blue Thumb Volunteer Monitoring Data Review, May 2009

Written by Julia White and Brittany Carroll

The Woods Creek watershed drains approximately 6 square miles in southern LeFlore County in southern Oklahoma. The creek originates in the Winding Stair Mountains which are part of the Ouachita National Forest and flows in a north to south direction. The watershed is located in a sparsely populated area which includes a small rural town and a school.

The habitat assessment score for the June 8, 2007, sample was 90.74. The corresponding average score for the high quality streams in the Ouachita Mountains ecoregion was 118.8. The monitoring site was characterized by a high degree of canopy shade and vegetation along the sides of the stream. Submerged rocks and boulders in rocky runs and riffles provide a high degree of turbulence as water moves through the creek which in turn causes the water to be well oxygenated. These same rocks with gravel, small woody debris, and aquatic vegetation provide structure under the water surface that offers great hiding places for fish. There was not a great deal of variance in the depth of pools within the stream, but the bottoms of those pools had only a moderate amount of sediment which can limit the habitat for pool-dwelling fish. The presence of newly formed point bars and islands indicated some erosion upstream. In this reach, the creek is fairly straight. While Woods Creek does not score as well as the high quality streams, it seems fairly stable and should provide habitat for aquatic animals.

Fish were collected by seining June 8, 2007. The total number of species collected in Woods Creek was eight. Only one benthic species, the Redfin darter, was captured. This darter was also the only intolerant species found. Three species of sunfish were collected; the Largemouth bass, the Bluegill sunfish, and the Longear sunfish. The proportion of tolerant species was 4.8% while the central stoneroller (intermediate tolerance) made up 90% of the sample. The Redfin shiner, the Blackspotted topminnow, and the Redfin darter made up the remaining fish. The average high quality stream in the Ouachita Mountains has 18 species, 6 benthic species, 5 species of sunfish, 5 intolerant species and it takes 5 species to make up 75% of the sample. The Woods Creek sample is 67% as good as the average high quality stream. It gets a grade of C which means that intolerant and sensitive species are rare or absent.

Collection of benthic macroinvertebrates (bugs) took place in the winters of 2005 and 2007, and summer 2007. These time periods represent seasons of relative community

stability providing an opportunity for meaningful site comparisons. Samples were taken from areas of rocky riffles at the monthly monitoring site.

Taxa richness, which refers to the total number of different species, decreased from 21 in winter 2005, to 15 in winter 2007, and to 11 in summer of 2007. The corresponding Ouachita Mountain average was 19. The number of sensitive species and the number of sensitive individuals also dropped over the years. The total metric scores for Woods Creek went from 121% of the average high quality stream in winter 2005 to 71% in winter 2007 to 47% in summer 2007. Something seems to be happening to affect Woods Creek.

The chemical monitoring assessments on Woods Creek were done on a monthly basis beginning in December 2004 and November 2008. The percent oxygen saturation is healthy with a median value at 95%, which is normal. The pH is slightly low at 6.5, but still within a normal range. The soluble nitrogen is normal at 0.68 mg/L N. The orthophosphate phosphorus is 0.01 mg/L P, which measures up well with the other creeks in this ecoregion. The chloride, at 10 mg/L Cl, is lower than some of the neighboring creeks. The water chemistry field screening is completely normal.

Woods Creek has been monitored for *E.coli* four times; July 2007, Aug. 2007, Sep. 2007, and July 2008. The creek only had a reading above a 400 colony forming units per 100 mL water once in September 2007. It was 440 CFUs/100 mL. If the count reaches above a 400 the creek is unsafe for swimming.

Woods Creek is a beautiful stream. There is plenty of canopy shade to help keep the water cool, and enough instream cover to offer the creatures that live there protection. The habitat score indicates that there are some changes taking place in the stream. There are still some intolerant species that live in the stream. If there were many pollutants these fish and bugs would be the first to die out, due to their sensitivity. The streams' bug population appears to be in decline. Water chemistry is normal. Woods Creek has had only one instance where the *E.coli* count was over 400, which was in September 2007. When compared with the average high quality stream, Woods Creek is showing some stress. There is not a high diversity of species, as would like to be seen, but there are still some of the more sensitive species. This shows that the stream is not heavily polluted, since these species would be the first to die out. Woods Creek would be a good place to work with landowners in the watershed to try to figure out what is happening that is affecting the creek. The stream is still in moderate shape and it should be fairly easy to make a few changes that would protect the stream and help it become one of the high quality streams in the ecoregion.

Written by Jillian White, Brittany Carrol, and Shelby Hill