

Relay Creek: Stevenson
March 16, 2012

NW NW SW
Section 2-15N-11W
Blaine County
35.77559
-98.39950
WBID# OK520530-00-0150C

Blue Thumb Volunteer Monitoring Data Interpretation – February 2012
Written by Lisa Garrison

Description of Monitoring Site

Relay Creek is a natural creek that originates 6 miles SW of Watonga (in central northwest Oklahoma) and flows NE into the North Canadian River. The monitoring site is just east of Hwy 281 in the Stevenson Farm; this location is about a mile before Relay Creek empties into the North Canadian River. There are gradual mild curves in a northeasterly direction throughout the majority of the creek. Relay Creek has at least 3 tributaries that feed into the monitoring site. There is farmland and grassland within the drainage area of the watershed of approximately eight thousand acres. The creek typically runs October thru May depending on weather conditions.

Stream Condition & Habit Overview

A habitat assessment was conducted on Relay Creek June 12, 2009 and scored a 48.4. When compared to the average of high quality streams in the Central Great Plains ecoregion, which scored 77.6, Relay Creek has habitat problems. Relay scored well in canopy cover and streamside cover. The banks of the creek are between 6-7 feet high in most places with trees overhanging. The bank stability scored a little low, probably due to the steep and high banks and also that cattle have free range of the creek on this farm. In terms of flow, the creek scores below average due to the very unstable sandy bottom, shallow depth of the creek and seasonal water flow.

Biological Conditions

Fish

Using the average of high quality streams from the Central Great Plains Fish Report, Relay Creek's fish collection from June 12, 2009 ranks very well (92%). Ten species of fish were collected from Relay while the high quality streams averaged 13 species. One intolerant to pollution species, sucker mouth minnow, was found. The sand shiner was the only intermediate tolerance found. The collection also included 4 species of sunfish (green sunfish, bluegill sunfish, longear sunfish and largemouth bass). Several insect eating minnows were found and this aided in the good overall fish collection score. This 2009 collection on Relay Creek only lacked in sensitive benthic species, most likely due to the unstable sandy creek bottom.

Benthic Macroinvertebrates (bugs)

A bug collection performed on March 4, 2009 from Relay Creek ranked as well as the average of high quality streams from the Central Great Plains ecoregion. There were 3 more species of bugs found in this collection than in the average high quality streams. Relay Creek had 1 less sensitive bug species yet the population of sensitive bugs was still very good. The overall population of this collection was very well distributed amongst the 14 species found.

Chemical Condition

Chemical monitoring was performed 7 times on Relay Creek between October 29, 2008 and August 13, 2010.

Dissolved Oxygen – The percent of oxygen saturation ranged from 81% to 137% which falls in the normal range.

pH – The pH remained consistent at 8.00 – 8.50.

Soluble Nitrogen (combining Nitrate, Nitrite and Ammonia) – Two of the seven readings fell in the normal range, below 0.8mg/L N. Four of the readings were in the caution range between 0.8mg/L N - 1.5mg/L N. One reading (2.25mg/L N on December 30, 2008) was in the poor range above 1.5mg/L N. So nitrogen was always present when the creek was chemically monitored.

Phosphorus – The majority of orthophosphate phosphorous levels were in the poor range, above 0.1mg/L P. Only two readings were in the normal range, below 0.05mg/L P.

Chloride – The chloride readings averaged between 30 – 45mg/L Cl which is normal for this area. The chloride substantially dropped to 5mg/L Cl on August 13, 2010 at which point the creek dried up for a few months and was no longer monitored.

Synopsis

Relay Creek runs thru a rural area of farmland and grassland with few homesteads. It is a tributary to the North Canadian River. There is a riparian buffer strip of trees on each bank of the stream. Relay Creek is characteristically a sandy bottom creek with a good supply of fish and bugs during its running season. There are signs of bank erosion and the cattle having free range of the creek does not help. There is only one major highway that crosses the creek. In the drainage basin of Relay Creek there is very little human presence but there is a vast amount of livestock and wildlife throughout the creek. There does seem to be a nutrient problem (nitrogen and phosphorous) with the water but the one bug collection and one fish collection in 2009 scored well.