

Lost Creek: Woody  
NE NE SW  
Section 5-17N-3E  
Payne County  
Latitude: 35.97655  
Longitude: -97.00729  
WBID#: OK620900-03-0090C

Blue Thumb Volunteer Monitoring Data Interpretation – February 2012  
Written by Liberty Galvin and Jordan Beehler

### **Description of Watershed and Monitoring Site**

Lost creek starts as a small stream in Payne County in north central Oklahoma about midway between the cities of Stillwater and Perkins and generally flows southeast. It is surrounded by rural land that is not heavily cultivated. The majority of the land surrounding Lost Creek is used for pasture grazing; there are no residential areas located near this creek. Lost Creek is monitored on the east side of Perkins on private land about 2-3 miles before it widens and empties into the Cimarron River. The drainage basin up to this monitoring site is about 16 square miles. The creek is predominantly covered with woody vegetation and has predominantly sandy banks as it breaches the Cimarron River.

### **Stream Condition and Habitat Overview**

Lost Creek had lower habitat scores than the average high quality reference creeks in the Central Great Plains ecoregion. This creek can be identified as a woody habitat because of its high scores in canopy cover and streamside vegetative cover. Because of its bank stability and instream cover, Lost Creek provides a suitable habitat for a wide range of aquatic and terrestrial wildlife. The stream was graded low in terms of rocky runs and channel alteration (unstable creek bottom due to the sandy soil), but the site is still able to sustain a suitable range of macro-invertebrates.

### **Biological Conditions**

#### **Fish**

According to the Central Great Plains Reference Average, Lost Creek scored slightly lower. The stream scored a little lower on June 15, 2009 (83%) than it did on July 27, 2009 (92%). The majority of the fish species caught are tolerant to pollution and about a quarter are moderately tolerant. The stream contains only one intolerant species, the Suckermouth Minnow, while the reference conditions averaged 2 species of intolerant fish. This difference is what brought the fish scores down for Lost Creek. The fish species are evenly distributed between omnivores and insectivores; the woody vegetation provides a suitable habitat for insects, so these species are able to thrive. The fish collections were taken at two different times and display a consistent species diversity index that is higher than average.

#### **Benthic Macro-invertebrates (bugs)**

Because of the woody vegetative cover over the majority of the stream there is an above average number of macro-invertebrate species. According to the data, there was a better insect collection during February 16, 2009 than on July 27, 2009; this could be due to the precipitation during that

time or even the water temperature. Lost Creek rates slightly above average in terms of intolerant species; there are more species that are sensitive to pollution in this creek if compared to the Great Plains Region Reference Average. Having sensitive species is important because it displays this creek's cleanliness in terms of run-off pollution and other contaminants.

### **Chemical Condition**

Lost Creek was monitored monthly from February 26, 2009 to November 30, 2009.

### **Dissolved Oxygen**

The dissolved oxygen in the stream was high on February 26, 2009; 143% out of a normal range of 80% - 130%. This dissolved oxygen returned to normal levels during the following months and reached a critical low point on August 29, 2009 of 51%. This could be due to water temperature combined with environmental conditions such as drought.

### **pH**

The pH ranged between 7.5 and 8. It is well within a normal range.

### **Nitrate Nitrogen**

For the data recorded, the nitrate levels have not changed from .5 mg/L, but most tests showed that the nitrate levels were not detectable.

### **Ammonia Nitrogen**

There were typically no traceable levels of ammonia except on June 28, 2009 and July 31, 2009 when the levels never rose above .10 mg/L, an acceptable range for good stream quality.

### **Phosphorous**

The orthophosphate phosphorous levels were predominantly higher than normal, 0.05mg/L. During July 31, 2009 and November 30, 2009 the readings showed higher than acceptable for most creeks, breaching .10 mg/L. These high levels could be due to agricultural activity in the area surrounding the creek.

### **Chloride**

The chloride levels ranged from 20-65mg/L, all within the acceptable range for a healthy creek ecosystem.

### **Synopsis**

Lost Creek is a healthy habitat for fish and macro-invertebrates alike due to the excellent vegetation and canopy cover. The stream is surrounded by agricultural lands and shows signs of stress due to Phosphorous, but overall you can see no significant signs of heavy fertilizer deposits into this stream. The fish collection shows that there is some level of pollution occurring in the stream due to the presence of only 1 intolerant species; however the stream still contains an adequate range of species. The insect collection can be directly related to the high vegetative cover; there are a wide range of variable species located in Lost Creek. In reference to the phosphorous levels it would be beneficial to constantly monitor the creek to guarantee there are no detrimental effects due to run-off from nearby agricultural operations.