

## **Post Oak Creek: Indiahoma Road**

SW SE SW

Section 25-3N-15W

Comanche County

N 34° 41' 48.4"

W 98° 44' 0.7"

WBID#: OK311310-02-0070T

Blue Thumb Volunteer Monitoring Data Review – February 21, 2012

Written by Randy Hale

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

Post Oak Creek is located in the southwest corner of the Wichita Mountains Wildlife Refuge, a few minutes north of the City of Lawton, approximately two miles east of the Indiahoma gate. The site location is where the road crosses the creek. Post Oak Creek is a very straight running creek which originates at Post Oak Lake. The primary run-off in the watershed is from Mount Lincoln, Elk Mountain, and some smaller mountains to the west. This drainage area equates to about three square miles. It is located entirely within the public use area of the refuge. Post Oak Creek empties into West Cache Creek south of Cache, Oklahoma, and is in the Central Great Plains ecoregion.

### **Stream Condition & Habitat Overview**

The habitat was assessed starting at this monitoring point on Post Oak Creek and continuing a quarter mile upstream on 8/26/2004 and 6/9/2009. Both assessments scored higher than the reference conditions for this ecoregion. Post Oak Creek has excellent canopy cover that is provided by Post Oak, Willow, and Cottonwood trees. The balance of the vegetation consists of numerous forbs and grasses. Post Oak's creek bottom substrate is mostly sand and gravel with cobbles and is excellent habitat for fish and aquatic invertebrates. In some areas the substrate is bedrock. The creek is affected by a drought that has spanned approximately six years. The drought limits the flow, which in turn means there are few runs and rocky riffles. The average depth of the creek is 0.2 meters and the width (bank to bank) averages 11 meters. The bank stability is good and the streamside cover is excellent. There have been no recent channel alterations by humans. Since 2004 the instream cover has improved and pool variability has decreased.

### **Biological Conditions**

#### **Fish**

Fish collections were conducted on 8/26/2004 and 6/9/2009. The overall score for each fish collection averages a 50% when compared to the ecoregion reference conditions. The fish population of Post Oak Creek consists of five species. In 2004 three of the species were sunfish and in 2009 four of the species were sunfish. Twenty-six fish were caught in 2004 and nineteen fish were caught in 2009. All of the fish collected were

tolerant to pollution/sediment. This is a poor collection in comparison with reference conditions for the ecoregion. However, drought has created periods of no flow and sections of the creek have been left dry. Only scattered pools and upstream lakes have sustained fish populations.

### **Benthic Macroinvertebrates (bugs)**

Benthic macroinvertebrates have been collected twice in the winter and three times in the summer from Post Oak Creek. Both winter collections scored higher than the ecoregion reference conditions due to better population diversity. In the summer, two different collections in 2003 scored as well or better than the reference conditions. Summer 2006 saw a big drop, scoring 36%. In this collection there were three less sensitive species of bugs. The population for these sensitive bugs was very low. This caused the diversity to be low as well. Perhaps this is due to drought conditions.

### **Chemical Testing**

Post Oak Creek has been monthly monitored from 7/30/2003 to 10/30/2008. Over the years, chemical monitoring of Post Oak Creek has revealed that most of the time the dissolved oxygen (DO) percent saturation was within normal healthy ranges except a few times when there was very low to no flow. During the summer of 2005 the DO dropped to its lowest of 3mg/L (38% saturation). pH has ranged from 6.0 to 7.5 which is an excellent level. An estimate of soluble nitrogen was made by adding the amounts of ammonia-nitrogen, nitrate-nitrogen and nitrite-nitrogen found in the water. The soluble nitrogen levels were very low except one reading of 3.0mg/L N on 11/25/2003. Orthophosphate phosphorus was low except for a reading of 0.286mg/L P on 7/27/2005. Chloride results fell in a range from the detection limit to 45mg/L Cl. They were usually 20mg/L Cl or less. In January and February 2006 when there had been ice, the chloride level reached 120mg/L Cl. Since 2008 chemical testing has been very limited due to dry conditions and conflicting scheduling.

### **Synopsis**

Overall, Post Oak Creek has a healthy, suitable habitat. Instream cover has improved from the 2004 habitat assessment. The flow has been limited by the drought and this in turn is a limiting factor in the fish population. The extended periods of drought through recent years have produced conditions unfavorable for sensitive species. When there is enough water to make collections, the invertebrate collections are comparable to the best situation expected within the ecoregion. Chemically Post Oak Creek is healthy and well within the desired parameters. Post Oak Creek is a healthy stream suffering under drought conditions.