# West Cache Creek: Boulder Picnic Area

SE NE SW
Section 28-3N-14W
Comanche County
Lat N 34° 42’ 0.1”
Long W 98° 40’ 39.6”
WBID OK311310-02-0140T

Blue Thumb Volunteer Monitoring Data Review – February 21, 2012
Written by Randy Hale

**Description of Watershed and Monitoring Site**

Starting in the Wichita Mountains National Wildlife Refuge (southwest Oklahoma just north of Lawton) from Comanche Lake and Kiowa Lake (in the Special Use Area), flowing south into the public use area under highway 49 just north of the Refuge Headquarters, West Cache Creek travels through rural wildlife area to the monitoring site at Boulder Picnic Area. From there it continues its southeast flow through the refuge, through Ft. Sill’s Quanah Range, through the small town of Cache, and then more rural land to eventually meet with the Red River. The monitored site is located in the Central Great Plains ecoregion of Oklahoma, but is considered to be a subset. The streams in the Wichita Mountains have courser substrates, higher gradients, and less turbidity then elsewhere in the ecoregion (resulting in a distinctive group of fish species including the logperch, Oklahoma’s largest darter.)

**Stream Condition & Habitat Overview**

The habitat was assessed 2/27/2005, 7/14/2009 and 7/16/2009. This part of the state has been in drought conditions for several years and the site on West Cache Creek consisted of one large pool for the entire 400 m of habitat assessment. Even with no flow and no rocky runs or riffles, this stream had a better habitat score than the average high quality streams in the Central Great Plains ecoregion. There was plenty of stable instream cover (rocks and woody debris) and the banks are covered with vegetation alternating with bare rock. There is not much canopy cover because the creek is so wide in this reach that though the edges are shaded, the middle of the stream gets direct sun most of the day.

**Biological Conditions**

**Fish**

A fish collection on 7/16/2009 yielded many fish from 10 species. The collection was missing sensitive benthic species (darters and madtoms), intolerant species, and minnows. There were six different sunfish species: green sunfish, warmouth sunfish, bluegill sunfish, longear sunfish, redear sunfish, and largemouth bass. This is partially due to the difficulty of seining in rocks and woody debris in clear water and partially due

to the fact that there was only one habitat – a pool. The missing species dropped the metric score for West Cache Creek to 50% of reference conditions.

The fish collection on 7/14/2009 scored much better with an 83%. There was one more darter species found as well as one intolerant species (redhorse sucker) found. These two categories helped West Cache Creek to have a better score on this day.

The 9/27/2005 fish collection had a low score of 50%. Exactly half as many fish species were found as the reference conditions. Just like on 7/16/2009 this 2005 collection was missing sensitive benthic species (darters and madtoms), intolerant species, and minnows. There were six different sunfish species found.

**Benthic Macroinvertebrates (bugs)**

The ephemeral nature of this stream has limited the number of collections. This site on West Cache Creek has been monitored since mid 2003 but there have been only four bug collections conducted (winter 2005, 2008 and summer 2003, 2007) due to lack of flow or lack of water. In spite of the limited collections and periods of no flow, this stream has consistently scored well when compared to the reference.

**Chemical Testing**

West Cache Creek has been monthly monitored from 7/30/2003 to 10/30/2008. Throughout the years there has been little chemical variability with this stream. The average percent oxygen saturation is 100.5%, with one very low point of 35% on 9/29/2004. The average soluble nitrogen (combining Ammonia, Nitrate and Nitrite) is 0.2mg/L, with one very high point of 4mg/L on 11/25/2003. The orthophosphate phosphorus has a very small range and the average is 0.007mg/L, with one very high point of 0.067mg/L on 7/28/2004. The average pH is 7.5. The average Chloride is 10mg/L.

**Synopsis**

West Cache Creek flows through predominately rural areas. Much of the watershed is in federal government land that is protected from population growth or habitat alteration. The remainder of the watershed is rural. The habitat is excellent. The fish collection is missing several species, but they are not often found in pooled areas. The benthic macroinvertebrate collections indicate West Cache Creek is comparable to the best situation expected in the Central Great Plains ecoregion. Drought conditions the last few years have had effects on flow and vegetation, but overall the stream appears to be healthy.