

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

December 13, 2006

Post Oak Creek is located in the southwest corner of the Wichita Mountains Wildlife Refuge, a few minutes north 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 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 Level 3 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 eleven meters. The bank stability is good and the streamside cover is excellent. There have been no recent channel alterations by humans.

The fish population of Post Oak Creek consists of five species, of which three species are sunfish. They are: Central stoneroller, Mosquitofish, Bluegill sunfish, Longear sunfish, and Largemouth bass. Twenty-six fish were caught in our August 26, 2004 collection. The most abundant species was the Mosquitofish. All of the fish collected with the exception of the Central stoneroller (intermediate tolerance) were tolerant. 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 deep pools have sustained fish populations.

Benthic macroinvertebrates have been collected twice from Post Oak Creek. The summer 2003 streamside vegetation sample produced 17 taxa though only 3 were from the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) (EPT). The winter 2005 collection was made from a rocky riffle and produced 9 taxa, of which three were EPT taxa. Even with reduced EPT taxa richness Post Oak Creek's metric score indicates it is comparable to the best situation expected within the ecoregion with balanced trophic and community structure for the stream size.

Over the past three 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 flow to no flow. During the summer of 2005 the DO dropped to 3 mg/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 and nitrate-nitrogen found in the water. The soluble nitrogen levels were very low except one reading of 3.0 mg/L N on 11/25/2003. Orthophosphate phosphorus was low except for a reading of 0.286 mg/L P on 7/27/2005. Our Chloride results fell in a range from the detection limit to 45mg/L. They were usually 20 mg/L or less. In January and February 2006 when there had been ice, the chloride level reached 120 mg/L.

Overall, Post Oak Creek has a healthy, suitable habitat. The flow has been limited by the drought and this in turn is the major limiting factor in the fish population. 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.