

Panther Creek: Hwy 49

NE NW NE
Section 21-3N-14W
Comanche County
N 34° 43' 28.9"
W 98° 40' 24.4"
WBID#: OK311310-02-0150G

February 21, 2012
Written by Randy Hale

Panther Creek is centrally located within the Wichita Mountain Wildlife Refuge, a few minutes north of Lawton, off Highway 49 which crosses over the creek. Our sample site begins on the north side of the bridge in the public use area and extends 400 meters north into the Special Use Area. It is downstream of Apache Lake in the Special Use Area of the refuge and upstream of Burford Lake on the public use side of the refuge. The creek flows from north to south, terminating in West Cache Creek, and has a watershed of about six square miles. There are only wildlife and bison populations in the watershed and the land use is all natural rangeland. Panther Creek is in the Central Great Plains Level 3 ecoregion.

Panther Creek is a straight creek that enjoys good canopy cover and abundant bank vegetation which ensures bank stability. Canopy cover is provided mostly by Post Oak, Willow, and Cottonwood trees. The balance of the vegetation along the creek consists of numerous forbs and grasses. The creek-bottom substrate consists of loose sand, cobbles and gravel which are good habitat for the fish and bugs living in the creek. In a few places the substrate is granite bedrock. The creek is affected by a drought that has spanned approximately six years. Many of the creek's runs and rocky riffles are absent due to this ongoing drought and many times water can be found only in remaining deep pools. During much of the year, the creek has experienced low flow due to the drought. The habitat was assessed in 2005 and 2009. The main difference is that channel alteration increased, this means that there was less silt to form point bars and the drought conditions just leaving a few pools with granite bottoms.

Fish collections were conducted on 9/26/2005 and 6/10/2009 and both scored a "D" grade. The main limiting factor influencing the richness of fish populations and species diversity is the ongoing drought, eliminating all but the deep pool habitats. Between 2005 and 2009 the number of fish species dropped from 6 to 4 while the Central Great Plains ecoregion average had 14 species. No sensitive benthic species were collected, compared to 4 for the reference conditions. The entire population of fish collected for Panther Creek was tolerant species. In both collections there was an excellent population of sunfish species.

The drought has limited how many times we have been able to collect aquatic invertebrates on Panther Creek. Two winter collections (2005, 2008) and two summer

collections (2003, 2007) have been conducted. When we have been able to collect, the EPT taxa richness and abundance have indicated excellent water quality and a healthy habitat. The Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (Caddisflies) are generally more sensitive to pollution than any other groups. As a stream deteriorates in quality, members of this group will be the first to disappear. The diversity is also very excellent in all the collections. Panther Creek's macroinvertebrates scored very well when compared against the reference conditions in this ecoregion indicating they are comparable to the best situation expected within the ecoregion.

Panther Creek was chemically monitored monthly from 7/30/2003 to 3/31/2009. The majority 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. September 29, 2005 the oxygen level was critical at 2mg/L (24% saturation). The average percent oxygen saturation is 90%. Soluble nitrogen (combining Ammonia, Nitrate, Nitrite) average is 0.115mg/L N, which is well in the normal range. The orthophosphate phosphorus likewise has been in the normal range with an average of 0.007mg/L P. One reading was in the caution range on 3/30/2004 at 0.060mg/L P. There was very little deviation of pH (7.0 – 7.5). The chloride results have averaged 10.0mg/L Cl, which is in the normal range.

Overall, Panther Creek has a healthy suitable habitat. High flow periods between 2005 and 2009 have removed two beaver dams which increased Channel Alteration. Overall, the quality of the habitat has improved since 2006. The creek's flow is limited by the drought and this in turn is the major limiting factor in fish and aquatic invertebrate populations. When there is adequate flow, the invertebrate collections are comparable to the best situation expected within the ecoregion. Chemically Panther Creek is healthy and well within the desired parameters. Panther Creek is a healthy stream suffering under drought conditions.