

## 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

December 13, 2006

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 landuse 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. One significant alteration of the creek has been the construction of two beaver dams which are located on the north side of the bridge off highway 49.

The main limiting factor influencing the richness of fish populations and species diversity is the ongoing drought. The fish collection of 2005 resulted in a total of 107 fish collected from six species. 84% of the fish caught were bluegill sunfish and mosquitofish. The remaining species included green sunfish, longear sunfish, warmouth sunfish and largemouth bass. No sensitive benthic species were collected. The entire population of fish collected were tolerant species. When compared to reference conditions in this ecoregion, this Panther Creek collection receives a low score for the fish collection, but the drought conditions have eliminated all but the deep pool habitats.

The drought has limited how many times we have been able to collect aquatic invertebrates. All of our collections have been from streamside vegetation because of the lack of riffles. 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.) 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.

Over the past three years of chemical monitoring Panther Creek has revealed the following: 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 2 mg/L (24% saturation). There was very little deviation of pH (7.0 – 7.5). The soluble nitrogen levels were below 0.2 mg/L N except February 23, 2006 when it was 0.6 mg/L N. Orthophosphate phosphorus has ranged from below detection to 0.06 mg/L P on March 30, 2004. Chloride results ranged from 5 mg/L Cl to 15 mg/L Cl - all within the excellent acceptable range.

Overall, Panther Creek has a healthy suitable habitat. Its flow is limited by the drought and this in turn is the major limiting factor in fish and aquatic invertebrate populations. When there is enough water, 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.