# Kickapoo Tribe of Oklahoma Project Information

**Technical Project Description:** The primary objective of this study is to define the reference condition of macroinvertebrate assemblages in wadeable streams in the Northern Cross Timbers level IV ecoregion of central Oklahoma. The data will also be used to scale habitat and macroinvertebrate data collected by the Kickapoo Tribe of Oklahoma. Data from this study will be shared with other tribes and agencies engaged in water monitoring in the ecoregion.

The spatial scale of the study is the Northern Cross Timbers ecoregion; the time scale of the study is two years. Basic water quality data (water temperature, pH, specific conductance, turbidity, dissolved oxygen, total phosphorus, nitrate/nitrate and *E. coli*) will be collected eight times at each site during the two-year project period. Macroinvertebrates will be collected annually during the Summer Index Period (July 1-September 15) (OWRB, 2006). Water quality, habitat and macroinvertebrate data will be collected in accordance with our EPA-approved *Quality Assurance Project Plan for KDEP’s Surface Water Monitoring Program* (KDEP, 2015).

**Site Selection:** Reference sites will be selected based on geospatial data. Possible data sets for the selection of reference condition sites include NPDES point source discharges, aerial photographs, and land use and land cover data. Reference sites will be randomly selected from the total population of sites that meet the reference condition criteria to enable later use of inferential statistics. Sites may be removed from the reference condition sample if unexpected impairments or instream habitats that are not represented in the test sites are discovered during the initial or subsequent visits. They will not be removed, however, solely on the basis of an impoverished macroinvertebrate fauna.

**What we plan to do with study information:** Ideally, the data from this study would be used to construct a predictive model using ordination, multiple regression, or discriminate function analysis (DFA). If catchment and habitat measures explained a sufficient proportion of the variation in macroinvertebrate measures at sites in reference condition, we could then use the model to determine whether a test site was in reference condition. We do not currently have the internal capacity to construct a predictive model. However, if this study is funded, we will seek out technical and financial assistance to complete further statistical analysis and model building using the collected data.