



Streams Monitoring at Chickasaw NRA

Importance

Riparian habitats constitute less than 2% of the land area in the American Southwest, but support the highest density and abundance of plants and animals of any habitat type, making streams and associated riparian areas critical to the ecological integrity of the region. Riparian areas supply food, cover, and water, and serve as migration routes and habitat connectors for a variety of wildlife. They also help control water pollution, reduce erosion, mitigate floods, and increase groundwater recharge. Riparian systems perform numerous ecosystem functions important to human populations, yet are one of the most endangered forest types in the United States.

Monitoring Objectives

The goal of this protocol is to detect broad-scale changes in aquatic and riparian ecological condition by observing selected ecological drivers, stressors, and processes. Specific, measurable objectives are to determine status and long-term trends in selected parameters for stream channel morphology, riparian vegetation, core water quality parameters, surface water quantity, aquatic macroinvertebrates, and fish.

Status of the Effort

During Water Year 2011 (WY11, October 2010–September 2011), staff from the Southern Plains Network (SOPN) and Chickasaw NRA met to prepare for the implementation of water quality monitoring in WY12. In part because it includes a U.S. Geological Survey (USGS) stream gage, the Rock Creek Campground segment of Rock Creek was selected for monitoring (Figure 1). Co-locating our sampling site with this existing gage, which collects high-quality data on both continuous discharge and water quality, increases our efficiency by eliminating the need for network infrastructure at the site. Park staff has also expressed interest in conducting monitoring on Travertine Creek, where staff from Chickasaw NRA and the USGS recently installed a stream gage at its confluence with Rock Creek. SOPN staff is currently devising an expanded sampling plan to accommodate this new data source.

In WY11, SOPN staff conducted a site assessment of the Rock Creek Campground segment. The information collected, including measurements of sediment particle size and embeddedness, bankfull and floodprone water elevation, and canopy cover, will help us to understand ecosystem processes on Rock Creek and increase the efficiency and effectiveness of future monitoring efforts.



Travertine Creek.

The SOPN plans to partially implement streams monitoring at the park in WY12. We will conduct quarterly sampling of more than 30 water quality parameters and collect data on benthic macroinvertebrates, stream discharge, channel morphology metrics, and riparian vegetation.

Contact

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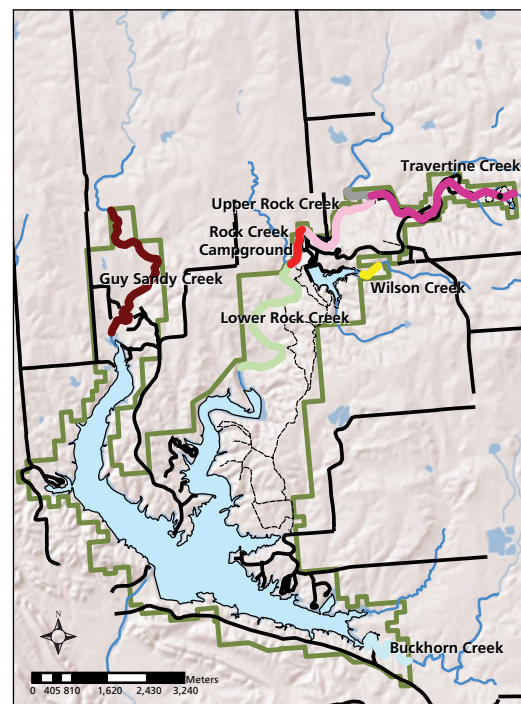


Figure 1. Stream segments selected for monitoring at Chickasaw NRA.