



Streams Monitoring at Washita Battlefield NHS

2011

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) conducted a site assessment of the Washita River segment selected for monitoring. The information collected, including measurements of sediment particle size and embeddedness, bankfull and floodprone water elevation, canopy cover, and other metrics, will help us to understand ecosystem processes on the Washita River and increase the efficiency and effectiveness of future monitoring efforts. This work was made challenging by the prolonged drought conditions in western Oklahoma, which have caused the segment to run dry (see figures). There was extensive tamarisk regeneration in the channel (Figure 1a) and a limited amount of cottonwood recruitment, mostly in the downstream half of the segment (Figure 1b).

The SOPN plans to partially implement streams monitoring at Washita Battlefield National Historic Site 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.

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Figure 1. Prolonged drought conditions in western Oklahoma caused the monitored segment of the Washita River to run dry. Extensive tamarisk regeneration (A) and a limited amount of cottonwood recruitment (B) occurred in the channel.