

USING MONITORING AND RESEARCH TO DIRECT MANAGEMENT OF RIVER FLOODPLAIN RESTORATION ALONG THE ILLINOIS RIVER, ILLINOIS

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ABSTRACT

The Nature Conservancy has partnered with Yellow Springs Instruments, Inc (YSI) to establish landscape-scale water quality and meteorological data collection sites that will provide the necessary environmental data to direct management decisions for one of the largest floodplain restoration projects in the Midwest.

In 2007, The Nature Conservancy began to restore agricultural land along the Illinois River back to river-floodplain habitat at the Conservancy's 7100-acre Emiquon Preserve near Lewistown, Illinois. Restoration of Emiquon to native floodplain communities represents one of the first river reclamation efforts of this scale and requires careful management directed by scientific monitoring and research. The restoration process is guided in part by a conservation plan developed by the Conservancy and the Natural Resources Conservation Service and in part by recommendations from the Emiquon Science Advisory Council, a group of >40 scientists of regional and national acclaim. An essential management tool that has been developed through these partnerships is the establishment of Key Ecological Attributes (KEAs) for Illinois River conservation targets (i.e., species or communities that represent biodiversity of the river ecosystem). KEAs identify characteristics of each conservation target that are critical to its success and thus provide a framework for monitoring and management strategies designed to conserve biodiversity of the Illinois River and its floodplain habitats.

Conservancy scientists and other researchers are collecting water quality and environmental data from the Emiquon floodplain site using 3 EcoNet Data Acquisition Systems and a 6213 MET Sensor Suite, that were donated to the restoration project by YSI. Remote online access to data and continuous monitoring capabilities of these systems provide real-time data that are used to monitor diurnal and seasonal dynamics of water and environmental conditions. Data are being used to measure an array of KEAs for aquatic targets and will be used to track progress towards restoration goals, evaluate effectiveness of our strategies and actions, and to adjust management priorities and strategies accordingly. In addition, we are developing a model to test the extent to which the current monitoring units accurately predict environmental conditions for aquatic targets across the entire floodplain habitat. EcoNet data are available at www.uis.edu/emiquon/research.

KEYWORDS

Water Quality Monitoring, Floodplain Wetland Restoration, Illinois, Adaptive Management.