

**EVALUATING THE HYDROECOLOGICAL EFFECTS OF FLOOD PLAIN RESTORATION IN THE HEADWATERS OF THE EAST BRANCH PECATONICA RIVER, WISCONSIN**

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*Abstract:* Few floodplains in the Driftless Area of southwestern Wisconsin currently consist of native wet prairie species due to a combination of historical floodplain sedimentation, riparian land use change, and invasion of non-native species. A new restoration technique that removes the post-settlement alluvium and uncovers the pre-settlement floodplain surface is being evaluated in the East Branch Pecatonica River watershed. This restoration activity is expected to substantially change the hydrologic regime of the floodplain by decreasing the depth-to-water-table and increasing the surface water connectivity between the channel and its floodplain. In turn, this is expected to lead to conditions favorable to the establishment of wet prairie species. Field monitoring and remote-sensing are being used to quantify surface and subsurface water fluxes and map vegetation communities. This data is then being used to characterize water flux, depth-to-water-table, and soil moisture regimes. Subsequently, the vegetation maps are being used to create vegetation threshold hydrographs that predict the plant community that is most likely to thrive under a modified hydrologic regime.