

[Riparian plant species preferences indicate diversification of site conditions after river restoration \(Modrak et al 2017\) \[1\]](#)

Numerous river restoration projects have been undertaken to improve the hydromorphology of rivers and their floodplains. Subsequent ecological monitoring is usually restricted to instream quality assessment, but riparian areas and floodplains are rarely assessed. A good indicator for riparian assessment could be vegetation as its diversity is dependent on functioning hydromorphological processes. We used a comparative survey to test the effect of newly created river morphological features on riparian plant composition at restored reaches relative to nonrestored reaches.

We investigated 43 larger river restoration projects in Western Germany, realized between 1987 and 2008. The vegetation surveys were conducted between 2005 and 2013. We hypothesized that (a) morphological river restoration leads to the diversification of riparian vegetation, higher reach-scale habitat heterogeneity, and optimized habitats. These changes will (b) be reflected by ecological preferences indicating hydromorphological functioning. We detected significantly higher species diversity in restored reaches. New habitats and hydrological interactions in the active channel and with the floodplains were fundamental, with the latter indicated by species preferences. In restored reaches, we observed higher percentages of plants indicating regular flooding, significantly higher mean moisture tolerances, and an extended range of moisture preferences. Morphological river restoration can diversify and fundamentally influence riparian vegetation. Ecologically meaningful projects should address the rehabilitation of abiotic processes, focusing on a functioning flooding regime and near-natural riparian habitats. Riparian vegetation will reflect the improvements and consequently could be used as an indicator for restoration efforts. Thus, riparian vegetation assessment is worthy of consideration through legal obligations.

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