Structural and functional responses of floodplain vegetation to stream ecosystem restoration (Göthe et al 2015) [1]

Most river restoration projects have applied relatively small-scale measures focused on improving specific instream conditions, with only limited outcomes for biodiversity in rivers and their adjacent riparian habitats. Here, we investigate the effects of both small- and large-scale restoration projects on floodplain vegetation across 20 European catchments. We focused on the roles of different restoration parameters (i.e., the number, spatial extent and type of restoration measure applied and restoration age) and specific environmental characteristics in regulating changes in plant diversity and trait composition following restoration.

Among restoration characteristics, restoration type was the only significant determinant of plant community responses, with stream channel widening having the strongest effects, particularly on the diversity and composition of species traits favoured by increases in physical disturbance (e.g. flooding) and open habitat patch availability (e.g. plant growth form, life strategy and life span). Of the environmental variables, altitude and discharge were positively and most strongly related to responses of both species and trait diversity. Our results emphasise the value of (i) choosing relevant restoration measures that affect environmental conditions of importance for the target organism group and (ii) conducting restoration projects in environmental settings where the likelihood of restoration ''success'' is maximised.

Keywords: Plants, Diversity, Traits, River, Disturbance, Flooding

Publication Date:

Friday, 24 July 2015

Full reference:

Göthe, E., Timmermann, A., Januschke, K., Hering, D., & Baattrup-Pedersen, A. (2015). Structural and functional responses of floodplain vegetation to stream ecosystem restoration. Hydrobiologia -. published online 24 July 2015

Link to DOI:

http://dx.doi.org/10.1007/s10750-015-2401-3 [2]

Links
[1] https://reformrivers.eu/structural-and-functional-responses-floodplain-vegetation-stream-ecosystem-restoration-g%C3%B6the-et-al
[2] http://dx.doi.org/10.1007/s10750-015-2401-3

REFORM has received funding from the European Union's Seventh Programme for Research, Technological