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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Spatio-temporal heterogeneity of riparian soil morphology in a restored floodplain" *by* B. Fournier et al.

Anonymous Referee #2

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The manuscript presents very interesting results on spatio-temporal heterogeneity of soil morphology in a restored river reach along River Thur in Switzerland using three criteria (soil diversity, dynamism and typicality) and their associated indicators. The authors clearly show that soil morphology provides structural and functional information on floodplain ecosystems and allows predicting broad changes in plant diversity. I fully agree with the authors that spatio-temporal heterogeneity of soil morphology represents a cost-efficient ecological indicator that should be integrated into rapid assessment protocols of floodplain and river restoration projects.

Such studies as presented are needed to better understand the impact of river restoration on ecology. Therefore, I explicitly support this work. The manuscript is very well written and in most parts comprehensive. I studied the comments of the first reviewer

and the reply of the authors and considered this in my review. However, I did not see the new version of the manuscript, therefore I cannot fully judge if the authors took care of all the points adequately. Therefore, in the following I state my main concerns and make recommendations how to address those.

Indeed, the description of the study site is quite weak. The work described in the manuscript is part of an interdisciplinary effort as described in the mentioned paper by Schneider et al. (2011). I suggest that the authors extend this paragraph by introducing this work more comprehensively by including the following sentence (or a variation thereof) in paragraph P4341L3-12:

This study was part of the interdisciplinary RECORD-Project (http://www.cces.ethz.ch/projects/nature/Record).

This allows the reader to access much more information including hydraulics, morphology and hydrogeology.

Furthermore, it might be beneficial if the authors refer to two recent publications which describe the site and the conditions more in detail (the second one is in German only but might help anyway):

Diem, S., Renard, P., Schirmer, M. New methods to estimate 2D water level distributions of dynamic rivers. Ground Water (in press). Online available: doi: 10.1111/gwat.12005.

Schirmer, M. 2013. Das RECORD-Projekt - Flussrevitalisierung, eine ökologische Massnahme in einem komplexen Umfeld, Aqua & Gas, 3, 22-28.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 4337, 2013.