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

B. Fournier et al.

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Response to reviewer's comments:

General remarks:

Reviewer 1 highlighted the interest of the study and acknowledged the novelty of the approaches that were used. Nevertheless, he highlighted weaknesses in the descriptions of the diversity indices and the study site. These weaknesses constitute minor issues that were addressed in the revised version. Specific problems including mainly typesetting and unclear phrasing were also highlighted. A point by point answer to these problems is given below.

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Specific remarks:

P4339L6-7: The sentence was reworded

P4339L16: Done

P4340L3: The sentence was reworded

P4341L1-26: The description of the study site and its background was improved in the reviewed version according to reviewer 1's comments. Moreover, we provided as supplementary material (Supplementary figure 1: see below) a figure of the study site showing the state of the site before and after restoration, the spatial distribution of the habitats and elevation profiles again showing the state of the site before and after restoration. We believe that these additions respond to reviewer 1's concerns.

P4343L3-4: done

P4343L10-20: The descriptions of the soil diversity indices were indeed confusing. In the revised version, E1 and E2 were properly defined; the values of the indices were explained (i.e. what represents a high soil E1 or E2 for example); J (i.e. Pielou's evenness; calculated as $N0/\log(\text{Shannon entropy } H)$) was removed as it was strongly correlated to E1 and E2 and did not bring additional information.

P4344L8-10: The type of instrument used (laser level) was indicated in the revised version.

P4344L22: done

P4346L12: The statistical software used for the analyses (R) is given in the revised version.

P4349L1: Fraxinion is a phytosociological grouping of similar forests dominated by ash trees (*Fraxinus excelsior* in our case). Although correct, this terminology is not accessible to the broadest audience and was simplified in the revised version.

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P4349L3: done

P4350L1-4: done

P4350L4-7: This point was discussed in more details in the revised version and references were added to support this discussion.

P4352L10: Baize and Girard 2008 was removed from the reference list

P4355L4: done

Tables 3 and 5: The captions were improved and provide now all the information asked by reviewer 1. In addition, they now match the nomenclature given in the method section.

Fig. 2.: They are cumulated erosion and sedimentation rates that were calculated separately. This was not well explained in the former version and was modified in the revised one. We do not think that a grand mean net measurement accounting for the net balance between erosion and sedimentation processes would be more useful. To the contrary, we will lose information on the dynamism of erosion and sedimentation processes over time. For instance, a situation where erosion and sedimentation are strong but balanced over time would give the same result as a situation where erosion and sedimentation processes are null.

Fig. 5.: done

Complete caption of supplementary figure 1 is given below:

Supplementary figure 1. Illustrations of the restoration of the study site. Panels A and B show the state of the site before (June 2001) and after (May 2004) restoration. Panel C provides an example cross section of the study site before and after restoration. Panel D shows an aerial view that locates the different transects surveyed. The gray arrows indicate river flow direction; and the gray star shows the location of the chosen example transect.

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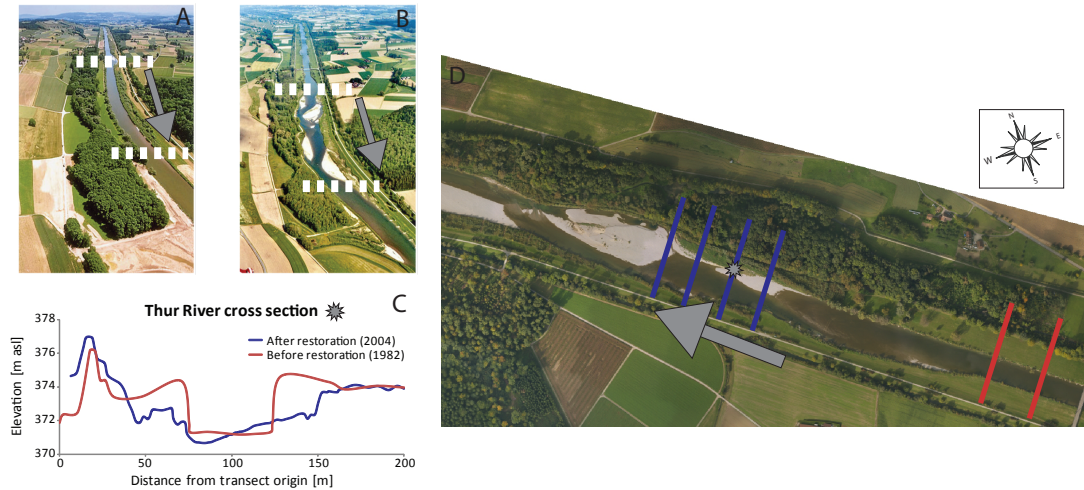


Fig. 1. Supplementary figure 1. Illustrations of the restoration of the study site.

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