Hydrol. Earth Syst. Sci. Discuss.,
https://doi.org/10.5194/hess-2017-266-RC2, 2017

Hydrology and Earth System Sciences
Discussions
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Interactive comment on "Experimental determination of the flood wave transformation and the sediment resuspension in a small regulated stream in an agricultural catchment" *by* David Zumr et al.

Anonymous Referee #2

Received and published: 7 July 2017

The paper presents an interesting experimental design at the Nučice agricultural catchment in the Czech Republic and represents a significant contribution in the fine sediment transport in constructed open channel drainages. The article is appropriate for the journal Hydrology and Earth System Sciences. The scientific methodology is sound, and methods explained thoroughly. The paper is well written and concise – a few editorial corrections are noted below.

Comments/Edits:

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Discussion paper

Title: The word “managed” would be a better word than “regulated”.

Abstract is concise and well written.

Introduction: Page 2, line 3, the word “stacked” – not sure what that means – does it mean “embedded in the channel bed alluvium”?

Introduction: Page 2, lines 22-23, explain “more important” – this is a vague statement.

Introduction: Page 2, line 27: the word “here” can be replaced with “in this paper”

General formatting: ïČŸ Page 3, line 10, km2 ïČŸ Page 3, lines 15-16, 30-31: genesis, species names are italicized (check with journal); also correct throughout manuscript ïČŸ Page 3, line 19, artificially- trained ïČŸ Page 4, line 11, m3 ïČŸ Page 5, line 15, Figs. 4-6; line 19, Fig. 4; Page 6, line 4, Fig. 5; line 28, Fig. 6; Page 10, line 12, Figure 6. ïČŸ Page 7, line 23, m3 ïČŸ Page 7, line 31, a space is needed between “conditions. Both”

Experimental set-up: Page 4, lines 15 & 30: what is the size of the H flume?

Numerical Modelling: Page 6, line 9: Reword as: “The initial pumped water volume was 85% recovered in the C profile. . . . . ”

Numerical Modelling: Page 6, line 14: Best to state as :”simple 1D hydraulic model in HEC-RAS unsteady flow.”

Numerical Modelling: Page 6, line18: Comment: Indirectly, stem blockage factor and frictional energy losses are fundamentally the same.

Numerical Modelling: Page 6, line 31-33: Is it possible to report with your use of the Richards equation, K, Φ, and ψ or h.

Discussion: Page 7, line 18, the word “convex” is better than “inverse”

Discussion: Page 8, lines 2-3, Comment: Was the HOAL experiment sediment-supply limited?

Discussion: Page 8, lines 30-33, Comment: It would be interesting to examine a long-term experiment observing a mass balance of fine sediment. I say that because your artificial water input was clear water (zero kg/s), but there was mass export. Just curious how that would change over time (hydrograph events) because it would potentially inform you better on shifts in source contributions over the annual seasons. Page 9, 2-4, was there any particle size distribution (PSD) data? That would also be interesting to observe over time. PSD requires an extensive commitment so I would not expect that that data are available.

Discussion: Page 9, line 23, the word “Reverse” – not sure what that means in the context of vegetation.

Discussion: Page 9, lines 26-28, Comment: Any discussion of the potential for fine sediment contributions from bank erosion?

Discussion: Page 10, lines 1-4, Comment: Others have found that soil moisture greatly affects erodibility of bank soils. You may want to reference this environmental conditions and interpolation of your findings.

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