Earth Surf. Dynam. Discuss.,
https://doi.org/10.5194/esurf-2019-60-RC2, 2019

Earth Surface Dynamics Discussions

Interactive comment on "Woody debris as a confounding factor in interpreting the width of spring-fed streams" *by* Dana Ariel Lapides and Michael Manga

Anonymous Referee #2

Received and published: 27 November 2019

Overall Summary: This article makes observations and comparisons in stream width and wood loading between spring fed streams versus run-off streams of similar discharges. The topic is interesting and the authors provide some compelling data gathered from remote sensing to broaden the traditional perspective that stream width is mostly a function of discharge to also viewing wood as a primary driver of stream widths. The paper is well written and the statistics well done. I originally reviewed this article for another journal and supplied a fairly critical review with the suggestion to reject based on some very major concerns. I was pleasantly surprised to find that this version of the manuscript is substantially altered from the original submission and thoroughly addressed most of my concerns from the original review. It is very much

improved and is now ready for publication. I suggest accept with minor edits.

Minor Edits/Concerns: The presence of wood jams versus single logs plays a role in not just channel width, but impacts whether channels are multi-thread versus single thread. Often jams are a forcing mechanism for multi-thread channels. I would have like to see this pointed out/ discussed a little bit within the introduction and in context of the case study streams. Were all the streams studied single channel streams? Or did the run-off streams have multi-threads along with the log jams? I don't expect this to become a major point of the paper, but I do think it is salient when interpreting the width of streams due to wood loading. Example locations to include this- ex. Lines 55-58. Wood accumulations may not just increase width or width to depth ratios, especially for places where they promote avulsions and multi-threads (see 10.1525/bio.2013.63.6.6, 10.1177/0309133314548091)

Line 53: This hypothesis could have a citation to back it up

It was unclear to me which study streams had erodible beds versus which ones didn't. Some descriptions mentioned that the stream went through erodible materials (i.e. glacial outwash, alluvium, etc) but other areas just mentioned that the underlying hardrock geology. It is important to know if all the streams in this study had erodible banks versus streams in bedrock channels. Can all the streams adjust their planform to the flow and to wood? Perhaps table one can include a field that specifies whether banks were erodible or not.

Caption for figure 4 should mention that these two streams have similar flow.

Results presented in line 237 should be highlighted more in the conclusion etc. As yet there really isn't that much in the wood literature looking at the accuracy of measuring wood from aerial photographs or satellite imagery. This is a valuable contribution and it would be nice to see it a little more light shone on it, rather than having it be buried in the middle of the paper.

Symbol shapes in legend in Figure 5 don't match symbols in plot

The findings regarding differences in mobility between spring fed and run-off could be highlighted more strongly in the discussion. They were presented in the results and thus should be discussed more fully in the discussion. For example, I found the increase in std deviation of width with stream width to be an interesting finding. . . but the speculation that this has to do with mobility and wood travelling further a little bit contradictory with your finding that the wider spring fed streams have less mobility than the narrower run-off streams. Some more discussion about mobility differences is warranted.

Personally I prefer the acronym LW rather than LWD. I don't like the negative connotation of 'debris' assigned to LW in streams. I would encourage the authors to consider not using LWD (keep it as a key word for searchability)

The last sentence of the conclusion seems out of place. I would delete it. Since the paper never really goes into management, it seems out of place to mention it out of nowhere in the last sentence of the paper.

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