Comment on soil-2022-1

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Community comment on "Meso- and microplastic distribution and spatial connections to metal contaminations in highly cultivated and urbanised floodplain soilscapes – a case study from the Nidda River (Germany)" by Collin J. Weber et al., SOIL Discuss., https://doi.org/10.5194/soil-2022-1-CC1, 2022

Dear authors,

Thank you for sharing this very interesting and well made contribution! While reading the manuscript, some minor issues attracted my attention and I didn't want to keep them to myself. Feel free to consider them for a future revision.

Title

The term "heavy metals" is used less and less since the density of a metal doesn't tell you much about its environmental relevance. I'd suggest to term them "metals of interest" instead.

Introduction

I would opt for a more concise introduction that is tailored more towards your objective and research questions. I find it rather lengthy and narrative in some parts. But this is of course a matter of style and personal perception.

Furthermore: were all findings reported in L83–87 performed in NaCl solution? Which ecosystem services did you have in mind (L98)? Why isn't there a hypothesis for bullet 3 (L123f)?

Methods

As for the introduction, I would suggest to prune section 2.1.

Though it's quite subjective, I always find it more intuitive to number sites and abbreviate sampling points with letters. In your case, this would also help to see right away whether the location was upstream or downstream (L185 and L191).

I wonder why you didn't use paper bags (L198f). Any specific reasons?

I haven't read the term "fine earth" yet and always used "fine soil" (L215). Don't know if one is more correct than the other.

Was there any protocol or criteria that made you only "partly" analyze plastics under the stereomicroscope (L238ff)? If so, which were analyzed this way?

The "rim jars" described in L242 were made of glass?

"Cowger et al., 2020" should be Cowger et al., 2021 and does not appear in the reference list (L296). In addition, r^2 and R^2 are used inconsistently.

Please be aware that non-parametric tests like Wilcoxon rank sum and Kruskal-Wallis tests do still assume equal variances. As you say, your data showed "significant differences in variance by group" (L323f). In such cases, you may consider a Welch test instead (which again assumes normality though). I would also suggest to inspect normality and homoscedasticity of the residuals rather than the data. This can as well be done graphically via QQ and residual vs. fitted plots, which is often more accurate than Shapiro and Levene tests. I tried some things on my own using the data published on figshare but struggled to interpret it correctly. You may also consider to add your R scripts to that repository. This would make it easier to follow your data analysis steps.

Results and Discussion

Well done! I really enjoyed reading those parts, especially sections 3.3.2 and 4.3. You may consider cutting some long sentences though. Also, you sometimes put question marks behind a sentence although it's not a direct question but a relative clause.

References

You cite more than 100 papers which is already half a literature review. You may consider reducing the number of references in favor of some review papers or one exemplary study, if possible.

Hope this helps. All the best,
Zacharias