

## ***Interactive comment on “What do we know about how the terrestrial multicellular soil fauna reacts to microplastic?” by Frederick Büks et al.***

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Dear Referee #3

Thank you very much for your critical review of our manuscript. It has helped us to see some points which still need clarification. In the following, we want to explain how we propose to adjust our article based on the reviewer's comments and also explain why in some cases we do not agree with the reviewer's proposed changes.

(1) Rereading our article we did indeed see that some typos had escaped our notice. We are slightly surprised by the request of the reviewer to have the manuscript edited by a “professional (!) native (!) biologist (!)”. We rephrased some stiff sentences and corrected grammatical errors. If a proofreading is indeed wished, we will have a

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scientific translator (English native speaker) correct the article.

(2) Your suggestion to omit the ecological presentation of some key taxa is understandable. If we would expect all readers to be well acquainted with the soil fauna, we would definitely go along with this. However, SOIL is a multi-disciplinary journal connecting a broad spectrum of soil scientists. Therefore, we think it is helpful to provide a short overview of information on the soil fauna, such as ecological functionalities (marker function, transport, degradation, habitat and food selection), which might influence how they cope with microplastics. We have critically gone through the article and here we summarize which parts we will shorten. Proposal: [1] We shortened the introduction of the springtail section, as it is indeed oversized. For the same reason we illustrated the phylogenetic tree of soil life. Proposal: We would agree with moving it to the supplements in order to save space, in case this is wished. We also do not fully agree with your suggestion to delete taxonomic groups that have not yet been subject of studies on microplastics. The reason is, that the aim of this work is not only to review effects on studied taxa, but also to show gaps of knowledge especially apart from the common model organisms. In fact, their importance for the current ecological research should be shortly mentioned. Proposal: [2] Unstudied taxa are still presented, but their importance for future research is now additionally mentioned in section 4.3 to better “balance completeness”. Proposal: [3] We shortened the chapter about Onychophora. *Potampopyrgus antipodarum* in fact is a benthic snail. Proposal: [4] We use this benthic species to show more clearly how inconsistent the few results for benthic and terrestrial snails are.

(3) The aim of this review is to depict the influence of microplastic contamination in soils to the soil fauna. But, to present a holistic view on the food web, we refer to microorganisms, plant roots and biofilms within the introduction section. Being large fields of knowledge on their own, these organisms are not part of the focus in this review, however they are food sources for meso- and macroorganisms and, thus, worthy of mention. Given that we only use 22 lines to describe these other parts of the phylo-

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genetic tree of soil life, we think this is merited and wish to leave this part in the review. Unfortunately, we do not understand how Rillig and Bonkowski (2018), a paper on soil protozoa, matches your point. We have read this paper and do mention it elsewhere in the review.

(4) The search was applied between June 2019 and January 2020, repeated in the first week of January 2020 and covers publications until January 2020. The search strings result from combinations of taxon, plastic type and particle shape shown in Table 1 (formerly Table 8). Proposal: [5] Information added to section 2.

(5) Thank you very much for the positive note.

(6) We understand this point completely and agree that it is not good practice to include scientists who have not contributed significantly to a paper. We also acknowledge that supervision is a very broad term and would like to specify the contribution of Martin Kaupenjohann to the paper. [6] Martin Kaupenjohann was involved in the development of the idea and concept for this paper. During the literature reading and writing phase he has supported the work with frequent discussions of the contents of the article. And finally he has critically revised the manuscript.

Best regards,

Dr. Frederick Büks, Dr. Loes van Schaik, Prof. Dr. Martin Kaupenjohann

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