

Interactive comment on “Relevance of aboveground litter for soil organic matter formation – a soil profile perspective” by Patrick Liebmann et al.

Anonymous Referee #1

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This is a nice straightforward presentation of a field study investigating the fate of surficial litter-derived carbon as it enters and travels down the soil profile. The introduction presents a good overview of the current scientific understanding and of the study objectives. As mentioned by previous reviewers, it may benefit from acknowledging past studies using radioactive carbon, as well as the few studies using stable carbon to follow the fate of surface litter. The methodological approach is described in sufficient detail, and the results are concisely presented (thank you!). This paper presents a case study-results from a specific soil. There is still value in getting the work published as is, as I agree with the authors that quantitative information on the fate of carbon inputs after they enter soils is still mostly missing. Out of curiosity, why was that particular study

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site chosen? For convenience, or was there another more scientific reason? However, I have been trying to wrap my head around the potential broader significance of the presented study. The studied site seems to be affected (to a large extent?) by bioturbation, and a lot of recent carbon was recovered in particulate organic matter. How would the situation be different in the case of soils less affected by soil fauna? Not only in term of the topsoil carbon, but also more importantly in term of DOC leaching and redistribution lower in the profile? Would fluxes then be more important? Lastly, how would the results look like if the study had been conducted longer? Eighteen months may not be enough time to see redistribution at depth.

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