

## Response to Editor and Reviewers: egusphere-2025-4625

**Title:** Rapid soil degradation following deforestation in Eastern Africa

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**Date:** May 8, 2026

Dear Editor, Dear Reviewers,

Thank you once again for the constructive feedback and the opportunity to submit a revised version of our manuscript, “Rapid soil degradation following deforestation in Eastern Africa” (Summerauer et al., egusphere-2025-4625). We appreciate the positive assessment of our previous revisions. We have now addressed the two remaining points in detail. Please find our responses below, where the original comments are in black and our responses are in blue.

1. The examination of the  $\delta^{13}\text{C}$  values as an independent verification of the match between the forest and eroded profiles. Please verify with the lab if these data are available as they would increase the confidence in your findings.

We thank the reviewer and editor for this suggestion. We agree that  $\delta^{13}\text{C}$  data would provide a valuable third line of evidence alongside SOC and  $\delta^{14}\text{C}$ . However,  $\delta^{13}\text{C}$  was not measured for these samples. In our specific radiocarbon facility, the AMS runs are optimized to maximize the  $^{14}\text{C}$  signal intensity; consequently,  $\delta^{13}\text{C}$  is not measured by default, as the precision would not meet the standards required for reliable isotopic measurements.


2. The determination of bulk density. Please clarify if this was indeed done on sieved samples, which is not common practice. If this was indeed the case, please clarify why you opted for this approach and briefly discuss the advantages and disadvantages.

We thank the editor and reviewer for highlighting the need for further detail here. We have clarified the methodology regarding bulk density determination. Specifically, for rocky samples where the common method was not feasible, bulk density was calculated using the fine soil fraction (<2 mm) with a correction applied for the mass and volume of coarse fragments (>2 mm). We have updated the text as follows:

*Soil bulk density was determined on unsieved soil where possible. In cases of high rock content, bulk density was calculated using the sieved fine soil fraction after correcting for the weight and volume of coarse fragments. These values were then used for calculation of SOC stocks.*

We hope we addressed the two points to your satisfaction.

On behalf of all co-authors,



Laura Summerauer