

Review of the Article:

Title: "Soil quality dynamics across a landslide profile from intact slopes to displaced material and bedrock"

General Assessment

The article by Roşian et al. investigates soil quality dynamics across a complete landslide profile in Transylvanian Basin, integrating physical, physio-chemical, and magnetic soil properties. The study compares intact soils, displaced landslide material, and exposed parent material to identify indicators of soil degradation associated with landslide processes,

The manuscript presents a valuable dataset and demonstrates considerable field effort. The integration of multiple soil indicators provides useful information regarding the consequences of mass movement on soil functioning. The paper is generally well structured, and the objectives are clearly stated. The results contribute to the growing body of literature examining how geomorphic disturbances influence soil quality and landscape evolution.

However, several aspects of the manuscript require improvement before publication. In particular, the discussion could better connect the findings to broader pedological and geomorphological theory. Some conclusions appear stronger than the available evidence supports, and additional clarification of methodological decisions would improve reproducibility.

Overall, I believe the manuscript has merit and can become a useful contribution after substantial revision.

Introduction

The introduction provides a comprehensive overview of landslide impacts on soils. However, several sections are descriptive and could be condensed.

L 25 is not a good sentence structure.

Some paragraphs reviewing previous studies are repetitive.

The research gap should be stated more explicitly near the end of the introduction.

The objectives are clearly stated.

The hypothesis should be rewritten in a more formal style.

Methodology

The study area description is adequate. Please provide additional details regarding the following aspects: sampling strategy; criteria used to select sampling points; measures

taken to minimize sampling bias and quality assurance procedures for laboratory analyses. These details are important for reproducibility.

The authors acknowledge several limitations, but these deserve a more critical discussion. Important questions could be answered:

- Why were only two transects selected?
- How representative are they of the entire landslide?
- Were sampling locations selected randomly or subjectively?
- Could micro-topography influence the observed trends?

Because landslide deposits are highly heterogeneous, spatial variability is a major issue.

Results and Analysis

The results are clearly presented and generally easy to follow. However, several sections repeat information already visible in tables and figures. Consider focusing on the most important trends rather than describing every numerical difference. Greater emphasis should be placed on effect sizes rather than only statistical significance.

Discussion

The discussion should move beyond description and provide more mechanistic explanations. In particular:

- What processes explain the observed differences among geomorphic positions?
- How does material displacement alter soil-forming factors?
- What role do erosion and deposition play in shaping the observed patterns?

Linking the results to established soil formation concepts would substantially strengthen the discussion.

Conclusion

The conclusions are generally supported by the data. However, some statements appear broader than the scope of the study. The conclusions should emphasize that findings are based on a specific landslide system and may not necessarily apply to all environments.

Future research directions should also be suggested.

Technical Comments

- Several sentences are unnecessarily long and should be simplified (e.g., L25)
- Abbreviations should be defined at first use.
- Ensure consistency in units throughout the manuscript.
- Verify that all figures are readable when printed at journal scale (Fig 2)

Table

Table 1 is useful but extremely large. Consider moving complete datasets to supplementary material and presenting summary statistics in the main manuscript.

Language

Overall English is understandable. However, numerous grammatical issues remain.

Examples:

L -30 soil quality respond,

L -63 Hypothesized that,

L-64 displace material

L-135 Despite of all these

Professional English editing is recommended before publication.

Final Assessment

The manuscript addresses an important environmental issue and contains valuable data. The study has the potential to contribute meaningfully to understanding soil responses to landslide disturbance. Nevertheless, revisions are needed to strengthen the scientific interpretation, clarify methodological aspects, and better position the findings within the broader context of soil-landscape evolution.