

We would like to thank the anonymous referee for this review and the constructive comments. We have addressed his/her comments as follows (any changes are highlighted):

*Comment: However there are other similar summarizing text that should be consulted namely book chapter Frouz J Kuráz V 2014 Soil Fauna and Soil Physical Properties. In Frouz J. (ed) Soil biota and ecosystem development in post mining sites, CRC press, Boca Raton, 265-278 pp. which specifically address this issue.*

Response: We thank the reviewer for this invaluable reference, which explores the effect of soil macrofauna on physical properties of post-mining soils and interactions of soil fauna activity with technical processes used during mine site rehabilitation. In this regard, we will add the reference to the manuscript accordingly. However, we would also like to stress that our short communication paper goes beyond the review of effects of macrofauna on general soil formation, but also presents a specific case as an example of the role termites play in the deterioration in performance of waste rock facilities (Chapter 2). We elucidate the role numerical modelled can play to better understand and eventually predict the performance of engineered cover systems (Chapter 3). Furthermore, we suggest two alternative approaches to collect empirical data that can be used to initially quantify these interactions and eventually to reduce uncertainty in modelled hydrological variables such as deep drainage, infiltration, or plant available water (Chapter 4).

*Comment: Secondly the text is focuses on role of ants and termites but neglect role of earthworm and other macro-fauna in this process which is quite fundamental also in mining soil. I realized that the proportion of individual fauna group vary in various countries and the authors are from Australia, where ants and termites play major role but e.g. termites play negligible role in most of Europe. So the authors should either made clear that this text is focused only on Australia, them more regional journal would be more appropriated or consider role of earthworms in larger extent. There are many studies available in European post mining soil to illustrate earthworm effect (here references in above mentioned review can be helpful).*

Response: We agree about the critical role earthworms play in the formation of soils in post-mining lands and regret that this important point was missed out. We intend to add the following sentence: “Later during ecosystem rehabilitation, burrowing macrofauna such as earthworms affect the soil structure and profile characteristics in a similar manner by modifying the pore and aggregate size distribution, the soil bulk density, and soil organic matter, eventually affecting the soil water holding capacity and infiltration rates (Blouin et al., 2013; Jouquet et al., 2014; Frouz and Kuraz, 2013).”

We would like to emphasise though that ants and termites, rather than earthworms, are amongst the first colonisers at post-mining sites “due to their rapid recolonisation, particularly by generalist taxa that have long-distance (relative to macrofauna) dispersal strategies.” (page 4, lines 19-21). “Within weeks after topsoil establishment, the first colonisers such as soil-nesting ants (e.g., *Iridomyrmex* species in Australia) build underground galleries, thereby initiating changes in soil properties (Lee and Foster, 1991).” (page 5, lines 16-19) Therefore, we believe the manuscript, submitted as short communication paper, should predominantly focus on the impact of ants and termites on soils.

*Comment: Finally I have some concern about organization of the article. The importance of mining and restoration is evident but the review should be about physic and biota so I would limit the note about socioeconomic impact and definitely do not put them in to name of the chapter instead I would underline advantages and limitation of post mining sites from research perspective and most importantly try to more conceptualize fauna effect.*

Response: At the Editor's discretion, we consider the current manuscript structure to be most appropriate to present a short communication paper (Reviewer #1: "The presentation is well structured..."). Chapter 2 discusses the impact of mining on social communities and ecosystems and the opportunities of post-mining land rehabilitation. More importantly, a specific environmental problem of open-cut mining is presented as an example to demonstrate the effect of macrofauna on waste rock cover facilities. The latter is briefly presented as a conceptual scheme in Fig. 2.

*Comment: I particularly missing effect of soil fauna on SOM distribution in soil profile which affect water field capacity and wilting points of post mining soil, again larger consideration of saprophagous macrofauna is highly needed. Also fauna effect will likely affect hydrology in several spatiotemporal scales, level of aggregates was already mentioned, then architecture of burrows wall and burrows itself, will be important, maintenance and development after abandonment many be another level of complexity and finally interaction of these processes on level of soil profile, those are just some key processes to consider. I believe that presentation of some schematic diagram or table that would summaries these processes and will be expanded in the text in the way what impact they may heave and how we should study them would substantially improve quality of the ms.*

Response: We thank the reviewer for pointing out the effect macrofauna can have on the formation of SOM and the effect on the field capacity of soils, and will add this aspect to the following sentence: "These macrofauna alter the local soil structure and profile characteristics (Jones et al., 1994; De Bruyn and Conacher, 1994), influence soil aggregate stability (Cammeraat and Risch, 2008; Lavelle et al., 2006), water infiltration and mechanical strength (Eldridge, 1994; Frouz and Kuraz, 2013), and increase the field capacity through the formation of holo-organic and organo-mineral aggregates (Frouz and Kuraz, 2013)".

Adding another figure about the processes influenced by macrofauna is beyond the scope of the manuscript and beyond the format of a short communication paper. Instead, we would like to point out that the manuscript already includes references that reviewed and presented those processes (e.g., Lavelle et al., 2006 and Jones et al., 1994).