Replies to reviewer comments

1. **Not sure what it means, and it can be confused with soil aggegates. Maybe aggregated soil information?**  
     
   *Adjusted wording to “aggregated” which should help people understand that we are describing summaries derived from a grouped data.*
2. **Not sure if mid-point is the most appropriate for this? Isn’t lower depth a better description?**  
     
   *Good question. I have no data to suggest that mid-point is any more useful than lower depth. However, I thought that mid-point would better accommodate the wide range in possible horizon thicknesses and describe the depth-wise ordering of horizons.*
3. **Is there a reason for 250 times? (in regard to iteration of model re-fitting)**  
     
   *It seemed like a sufficiently large number and did not produce results that were (visually) any different from 500 replications.*
4. **To be consistent with previous notation of horizon j. and m as number of horizons, which is different from n defined below as the n slices***I don’t think that this helps with readability. It is important that “n” be the number of GHL, and “i” is a single GHL.*
5. **Entropy is not a measure of uncertainty. It is a measure of how variable is the probability or overlaps. The model is still correct if it predicts a range of probabilities at a transition horizons.***OK. Uncertainty and model accuracy aren’t really the same thing. I agree that the model may be “correct” in generating high-entropy predictions over depth intervals containing transitional horizons. Are you requesting that we change something?*
6. **What is this? (in regards to silhouette width)***These values aren’t all that important and there isn’t enough room in this chapter to elaborate. Removed.*
7. **This is more of the uncertainty of the model rather than Shannon’s entropy. (in regards to model stability)***I don’t understand what this comment means: is the reviewer asking for clarification or change?*
8. **Can we attached an upper and lower limit of this boundaries based on the probabilities? (ML horizonation)***Not possible with “empirical probabilities”, possible with iterative re-fitting of PO-LR. I have added “upper” and “lower” limits based on the 5th and 95th percentiles of 250-fold re-fitting of the PL-LR model.*
9. **What do you mean? Spatial correlation?***This is correlation with depth, e.g. if I slice-up an A horizon into 10 slices these 10 slices “share” the same information. In this case, 10 slices != 10 degrees of freedom and therefore SE should be inflated accordingly. We have removed the word “structure” to improve clarity.*