**In answer to S. Sleuter's comments:**

Since novel and natural ecosystems differed most strongly in their SOM content, I would like to see some more details about these differences. Provide details on the NMR bands which differed most strongly and try to explain these differences as well.

*Answer. We have added a sentence in the results section (last paragraph) specifying: 'In terms of the NMR results, the novel ecosystems were characterized by higher O-alkyl carbon than the natural sites (p-value ≤ 0.05) but no indicator value was >30'. In the first paragraph of section 4.2. (Novel versus natural ecosystems), we added a sentence explaining these differences:' As reported previously (Turcotte et al., 2009), the strong O-alkyl carbon signal for the novel ecosystems is likely linked to the unaltered peat material used as an organic amendment on the reconstructed soils'.*

I cannot interpret Figures 1 and 2 since my knowledge of the applied statistical techniques is too limited. It would help if the authors could provide more elaborate explanation of the rationale for using NMS instead of 'common' (PCA, DA) multivariate statistical procedures. A sentence like l172 'All ordinations attained a very low stress (<10 in all cases) after 40-70 iterations' will be meaningless to most readers and I hope that also in the results section the authors would be prepared to add some more explanation. This could be achieved by providing some additional guidelines on how to interpret the data in the caption or in the table's footnotes.

*Answer. We have included additional information in our materials and methods section to clarify the statistical analysis.*

*The modified paragraphs reads:*

*'This ordination technique presents the advantage of not requiring normal distribution, nor does it assume linear relationships among variables (McCune and Grace, 2002). NMS organizes complex datasets in a reduced dimensional space (typically two dimensions) as to reveal similarities or dissimilarities in the original dataset structure. An optimal NMS solution results from the iterative search for the best representation within the reduced space. The strength of the NMS solution is expressed by the stress value, which indicates differences between the original data structure and the NMS solution. Generally, a NMS solution with a stress value < 10 is determined to be reliable'.*

*As suggested, we also have included footnotes or additional information in the table captions. For instance, for Table 2, the additional footnote reads: 'T: separation among groups; A: homogeneity within groups; p: probability value'.*

It was not clear to me why the authors specifically wanted to analyze a >53 μm low density SOM fraction by NMR. This needs further motivation. I would like to see an expanded discussion of the NMR data as well. In the interpretation in lines 281-286, I would mention that we in fact would have expected some differences in SOM composition in the 'young' SOM fraction amongst the different vegetation types. For example, an obvious hypothesis could have been to expect more alkyl C under the spruce and pine vegetation when compared to the aspen vegetation.

*Answer: We have clarified in the materials and methods that the: '> 53 mm low-density materials … represent the carbon pool most responsive to environmental changes (Turcotte et al., 2009)'. In terms of differences in SOM composition, we agree with S. Sleuter that we might have expected more alkyl C under coniferous vegetation than under aspen. However, as indicated in the results section, the differences were not statistically different: 'No significant indicators of ecosite types were found in the NMR data', which is*

*why we did not expend on these results in the discussion. On the other hand, and in response to the reviewer's first comment, we have added additional information on differences between the novel and the natural ecosystems.*

Specific comments
Line 136. μm instead of mm. Also specify the density cutoff used.
*Thank you. Done. Density cutoff was 1 g/cm3 as now specified.*

Line 284. Why suddenly make a link to carbon availability. This was not assessed in any way here.
*This refers to the link between microbial activity and carbon availability presented in the Ekblad and Nordgren (2002) reference.*

Line 290-293. I do not see the link between the start and the end of this sentence. Which three PLFAs are you mentioning? What is meant by this?
*We have clarified the sentence by mentioning the three PLFAs we are referring to, ie i15:0 3OH, 16:0 2OH, and i17:0 3OH.*