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Comment

## ***Interactive comment on “Nematode diversity, abundance and community structure 50 years after the formation of the volcanic island of Surtsey” by K. Ilieva-Makulec et al.***

**K. Ilieva-Makulec et al.**

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The authors thank the reviewer for many constructive and very helpful comments and suggestions on the manuscript, both in the quick review and in the interactive discussion. We have now made A MAJOR REVISION on the final version of the manuscript to meet those comments/suggestions (see a list with all comments and changes made found here below).

GENERAL NOTE FROM AUTHORS: It was a little peculiar that Page and Line numbers that Rev. 1 gave with his comments did not match the BGD pdf manuscript, and few minor comments seemed not to match the final version of the manuscript. It is therefore

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a question if it was maybe done on the original draft sent for quick review, which had later been modified by the authors before appearing in the Interactive Discussion of BGD? However, the fair majority of the comments were very relevant still.

GENERAL COMMENTS OF REV 1: The manuscript "... " focuses on the effects of volcanic island formation on soil nematode communities. The study found some nematode genera which were not found before in Surtsey. Therefore, the study has a certain significance to some extent. AUTHOR'S RESPONSE: No changes/responses needed.

GENERAL COMMENTS OF REV 1: However, there are three big problems the authors should be clarified. First, the MS is not well focused on this topic (50 years after the formation of the volcanic island of Surtsey), and more focus were put on the effect of seagull colony. What is the relationship between them? Perhaps you have your reasons, but now it is not very clear. AUTHOR RESPONSE: We rewrote the Introduction to improve the focus, and modified the Discussion chapter accordingly.

GENERAL COMMENTS OF REV 1: Second, the study was lack of novelty from the view of the study on soil nematode communities. The innovative aspect of the research and not the local importance is required for an international publication. AUTHOR'S RESPONSE: Authors rewrote parts of the Introduction and highlighted better the novelties of the study

GENERAL COMMENTS OF REV 1: In addition, I still think the English language is not good enough, which make some sentences are not easy to be understood. AUTHOR'S RESPONSE: The authors have tried once again to improve the English – and are ready to send the manuscript once more to a native English speaker for a final language correction if the handling editor requests it.

SPECIFIC COMMENTS OF REV 1: Page 2, L21-25: The expressions on "outside the gull colony", "inside", "in the fertile area" and "within the gull colony" are not consistent, which should be clarified or presented in advance as sampling position in the Abstract.

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Fair comment – the authors changed the wording in the M&M chapter – they also went through the whole manuscript and made the wording more standardized.

SPECIFIC COMMENTS OF REV 1: In Abstract, only common or usual results were present. I can not see what the new one from your study. AUTHOR'S RESONSE: The abstract was rewritten

SPECIFIC COMMENTS OF REV 1: P3, L14-16, L17-18: The sentence is too long and not clear. In introduction, many previous studies from 1970 to 2001 on soil nematodes in Surtsey were listed, but what is the importance or significance of your study? Please enhance it. AUTHOR'S RESONSE: Authors rewrote parts of the Introduction and explained this better.

SPECIFIC COMMENTS OF REV 1: P4, L4-6: what are the relationships between and the position of seagull colony? Whether the later also help to illustrate soil nematodes after 50 years formation or not? AUTHOR'S RESONSE: We redid Fig. 1 to better illustrate that the two areas are spatially separate and we made the text more clear on this point.

SPECIFIC COMMENTS OF REV 1: L7-8: I think this is not the aim of your study. Perhaps your aim is to And what the relationship between them is or what influence soil nematode communities. AUTHOR'S RESONSE: We changed/clarified better what were the aims of the study at the end of the Introduction chapter.

SPECIFIC COMMENTS OF REV 1: L12-13: What is the position of sampling site (longitude and latitude)? AUTHOR'S RESONSE: Better site description has been added to M&M

SPECIFIC COMMENTS OF REV 1: P5, L5: What is the meaning of "4 samples were processed"? What is the replication and how many? AUTHOR'S RESONSE: The wording was made more clear in the M&M

SPECIFIC COMMENTS OF REV 1: P6, L1: delete "for" AUTHOR'S RESONSE: We

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did not find this in the BGD manuscript.

SPECIFIC COMMENTS OF REV 1: L1-2: what is the objective to evaluate the significance of the differences between the mean values? AUTHOR'S RESONSE: This has been clarified better in M&M. => why comparing the two areas (=two contrasting successional seres), inside and outside the seagull colony.

SPECIFIC COMMENTS OF REV 1: L13-14: change to "The abundance of nematodes was significantly higher inside than that outside the seagull colony ( $P < 0.05$ )" The unit of nematode abundance is ind. cm<sup>-2</sup>, but what is the sampling area? The author did not explain it in the "nematode sampling". AUTHOR'S RESONSE: Information about corer area and volume added to M&M

SPECIFIC COMMENTS OF REV 1: L13-16: Abundance or density? The author had better only use either one. A unified name will be clearer for readers. AUTHOR'S RESONSE: Changed to "abundance" everywhere.

SPECIFIC COMMENTS OF REV 1: L25: delete "found in plots" AUTHOR'S RESONSE: Deleted.

SPECIFIC COMMENTS OF REV 1: L26: change to "In both habitat types, ..." AUTHOR'S RESONSE: This part has been changed.

SPECIFIC COMMENTS OF REV 1: L26: Which is similar to? Not clear. L22-31: The paragraph had better be rewritten. AUTHOR'S RESONSE: We are not sure which paragraph the Rev. 1 was referring to here. The BGD manuscript only has 28 lines per page. But we rewrote the latter part of the Results chapter, so it should have been corrected.

SPECIFIC COMMENTS OF REV 1: P7, L1: Change "Diversity" to "diversity" AUTHOR'S RESONSE: Done.

SPECIFIC COMMENTS OF REV 1: L1-2: not clear. Discussion It fails to provide a convincing story because it is excessively long and merely repeats the results. AU-

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THOR'S RESONSE: The discussion chapter has been changed quite a lot and such repetitions of results removed.

SPECIFIC COMMENTS OF REV 1:P9, L11-12: I think it may be different from the referenced research. The "primary succession" was mentioned many times in the manuscript. But which succession process happened? It is not clear. AUTHOR'S RESONSE: We have modified the discussion so this should be clear now.

SPECIFIC COMMENTS OF REV 1:L14-15: "was similar to the increase which has been observed in vascular plant species richness" What is the similarity? Trend or quantity? AUTHOR'S RESONSE: Good point. It was the temporal trend and this has now been clarified in the text.

SPECIFIC COMMENTS OF REV 1:L20-21: Why compare with the results in grassland in 1979? AUTHOR'S RESONSE: Because "grasslands" is the vegetation community that has developed on S2, albeit the reference was on a later successional stage of grasslands – this should be clear now after the changes made.

SPECIFIC COMMENTS OF REV 1: L28-29: Whether there is some statistical data to support the conclusion on "patchy and their abundance highly variable within the island" AUTHOR'S RESONSE: Taking single corer samples allowed us to asses the spatial variability in nematode abundances in both successional seres (now termed S1 and S2). The "patchyness" claim is supported with the number of samples found with no nematodes (see ranges in Table 2).

SPECIFIC COMMENTS OF REV 1: P10, L5-6: I think this conclusion is not exact. AUTHOR'S RESONSE: Well, although the abundance of omnivores genera (c-p 4) was relatively high, we still think that the maturity of nematode communities on Surtsey is low (as the Maturity Index also showed). The omnivores we found there (Aporcelamellus , Eudorylaimus) are often noted in the early stages of succession in the other studies. Another strong indication is that we are still missing typical predators, bacterial and fungal feeders with higher c-p value than 2.

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SPECIFIC COMMENTS OF REV 1: L13-14: Why and how to the seagulls increased significantly the soil fertility and organic matter contents, etc.? I think this is the key to explain the results. AUTHOR'S RESPONSE: Yes – we agree. We have improved the explanation for why this has happened.

SPECIFIC COMMENTS OF REV 1: L27-29: Have the authors considered the relevance or otherwise of the intermediate disturbance hypothesis to their data? AUTHOR'S RESPONSE: It is an interesting point that the referee made here. ID should maximize diversity. However, we don't think that IDH can be used to explain why the community is more diverse outside the seagull colony. There most environmental factors are less variable than within the seagull colony (cf. Magnússon et al and Leblans et al.), so if anything we would expect the reversed pattern from IDH. We did however not add these considerations into the Discussion chapter, since they don't help in explaining the observed changes.

SPECIFIC COMMENTS OF REV 1: P11, L1-2, L6-10: Authors made some statement many times without providing extra data for supporting. Results cannot be generalized beyond this study. We have tried our utmost to delete all such statements or support them with references (see e.g. Table 1). AUTHOR'S RESPONSE: We think that this comment was because we used some already published data on biotic and environmental factors from the same study plots in the multivariate analysis – and discussed our findings in relation to those conditions in the Discussion chapter. To make sure that there is no doubt from where these data come from we added Table 1 to the M&M which gives these average values for each habitat - - and reference to the study where those data have been reported.

SPECIFIC COMMENTS OF REV 1: L30: Why compare with the results of Krakatau, in which has different geographic, climatic and edaphic factors? AUTHOR'S RESPONSE: We removed this paragraph from the Discussion.

SPECIFIC COMMENTS OF REV 1: P13, L21: delete "4.5" SPECIFIC COMMENTS

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OF REV 1: We did not fully understand this comment – since “4.5” does not appear anywhere in the manuscript? If the reviewer meant that we should delete chapter 5 (Conclusions), then that would, however, violate the journal’s conventions. Therefore the authors did not do that; but they revised the Conclusion chapter.

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Interactive comment on Biogeosciences Discuss., 11, 14239, 2014.

**BGD**

11, C8318–C8324, 2015

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