

## ***Interactive comment on “Algal diversity of temperate biological soil crusts depends on land use intensity and affects phosphorus biogeochemical cycling” by Karin Glaser et al.***

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We thank the Referee for the valuable and detailed comments. It is obvious that the review took some time and the MS was read carefully. With the advices, how to improve our MS, we are motivated to revise our manuscript.

1) Definition of BSC in forest The Referee pointed out that more information is needed on forest BSCs, because it is an unusual spot. We will enlarge the introduction section for a clearer explanation of biological soil crusts in temperate forests and the differences to crusts from arid regions, where BSCs are the dominating life form. We think, that pictures from the sampling will help the readers to have a better imagination of crusts

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from forest sites. The Referee proposed several publications on microflora in forest understory. We agree with the opinion that an inclusion of the mentioned publications will strengthen our discussion about the obtained results. 2 ) Diversity The Referee is right, we estimated only the richness of cultivable algae. The drawbacks of our method is described well in the MS, but we have to check the wording as the terminology might be misleading at some places.

3) Phosphorus biogeochemical cycling The Referee sees a disagreement between the title and the conclusion of the paper. We understand the arguments of the Referee, which is in accordance with the first Referee. Of course, we don't want to make false promises. Thus, we would like to change the title "Algal richness of temperate biological soil crusts depends on management intensity and correlates with inorganic phosphours". The Referee is right, a correlation does not imply causation. Thus, the interpretation of our results will be carefully checked for over-interpretation.

4) Land use intensity The Referee pointed out that the description of the silvicultural management intensity (SMI) is not sufficient at some places and more information are needed. We will explain the graph in Figure 4 more in detail and introduce the SMI more detailed, so that the reader can follow our interpretation of the results more easily.

5) Additional comments: All of this comments are helpful to improve our MS at specific points and thus all will be included in the revised version of the MS.

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