

### **Authors' response to referee #1:**

Thank you for your valuable suggestions to improve the manuscript. We will reply to each of them below.

#### Specific comments:

- We added “soil hydrology” to the keywords. We preferred to keep “permafrost” in the keywords as well, because: although it turned out not relevant for forest regrowth, it does play an important role for forest distribution in the Mongolian forest-steppe, and we address this also several times in the paper. We added information on the role of permafrost in the abstract to make this clearer from the beginning.
- We changed Figure 9 concerning the arrow width and added further information to improve this figure.
- We included low, moderate and severe disturbance more explicitly in the discussion section.

#### Technical corrections:

- We reduced the number of citations, as you proposed.
- We reduced German references, as you proposed. However, we cannot ignore the Russian and Mongolian references, as they provide a source of information that is not available elsewhere.
- We added the missing company name of the analytical instrument (Eijkelkamp).
- We added the figure number behind “PCA” etc. to guide the reader directly to the respective figures.
- We deleted textbooks from the references.
- The cited PhD theses cannot be avoided, because they contain relevant information that was not published in a journal. Therefore, we kept citing these PhD theses.
- We corrected the reference list concerning differences in abbreviations, spelling and missing information wherever we could.
- We moved the climate diagram to the supplement.

### **Authors' response to referee #2:**

Thank you for the valuable comments. We will reply to each comment below.

#### Specific comments:

- We added specific information concerning sampling and laboratory measurements for plant-available field capacity. We explained why the number of hydraulic conductivity and plant-available field capacity measurements are unequal.
- We increased the readability of figure 8 by generating site numbers to make it easier for the reader to compare the sites.
- We added calculated plant-available field capacity using a pedo-transfer function. We analysed this data and added the information and a figure in the results, discussion and conclusions section.

#### Technical comment:

- We avoided the use of the term “ecotone” in the entire manuscript.
- We added details on the measurement of the pF curves, from which we obtained plant-available field capacity, in the methods part.

**Further improvements:**

- We adjusted the figure sizes to place them together with the figure captions on one page.
- We moved text within the sections to increase readability in context with the figures.
- We changed Table A1 to an editable format.
- We improved the language.