Solid Earth
Discussions

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Interactive comment on "Effects of rodent-induced land degradation on ecosytem carbon fluxes in alpine meadow in the Qinghai–Tibet Plateau, China" *by* F. Peng et al.

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Referee No. 3

This manuscript tries to explain the influence of different soil and vegetation properties with CO2 fluxes in an alpine meadow ecosystems. The topic is within the scope of the journal and the findings could deserve to be published, but the manuscript needs a deep improvement before being considered for publication.

[Response] Thanks very much for your positive assessment on the manuscript. We have revised the manuscript according to your other reviewer's comments.

The English needs to be thoroughly revised. There are a lot of sentences too long and wrongly built that in some cases make impossible to properly understand its sense. There are also a lot of spelling mistakes and wrongly placed words. In the following comments, I will only mention the more evident of these mistakes.

[Response] We are really sorry for the mistakes. Your corrections on the English mean a lot to us. We carefully went through the manuscript, and tried our best to revise the editorial errors to make the manuscript easily understandable.

The authors should correct the arbitrary use of acronyms and full names

[Response] Sorry for the confusion. In the new version, we only define the acronyms when it was firstly used and utilized the acronyms in the following sections.

Abstract P3004 L1-4: The first long sentence of the abstract, corresponding to the introduction, is wrongly built. P3004 L6-8: In the material and method section only some of the analysed variables are introduced. The authors should mention all the considered variables and the main analyses they conducted. Moreover, there is an inconsistency when the authors mention that degradation aggravates from D1 to D6 and later, in the results, they say thatD1 and D3 are the less degraded levels. P3004 L8-16: The authors should complement the results with data.

[Response] We re-wrote the abstract to make it easier to be read and understood according to your suggestion and another reviewer. In the new version, we deleted some long sentences and made the measurements of each variable specific. We also complement the results with detailed data.

Introduction: P3005 L1-8: The introduction has too many unnecessary data about carbon stocks that make difficult to follow the story. The authors should simplify this section and remove some data so it is not necessary to read it several times to understand.

[Response] Thanks very much for your suggestion! We have re-written the first paragraph of the introduction section. Many unnecessary data have been removed to make

it easily readable.

P3005 L12: In what county?

[Response] In revising the manuscript, we removed some unnecessary information. Referring to this county is not necessary anymore.

P3005 L15-16: There is a repetition: "reduction in soil C and nitrogen (N) concentration, (Wang et al., 2008b) and soil organic C pool".

[Response] Sorry for the redundancy. We have re-written the sentence to make it concise.

P3006 L19-21: This sentence has no sense.

[Response] The sentence has been removed.

P3006 L23: Not all the ecosystems loss nutrients or are imbalanced. It is more correct to say that rodent activity triggers these facts.

[Response] Thanks very much for your suggestion! Done as suggested.

P 3007 L9: The second objective needs to be rewritten and spp. should be added after Kobresia.

[Response] Done as suggested.

Material and methods P3007 L9-14: The authors have to provide an explanation on how they defined the levels of degradation. There is no clear trend from D1 to D6 in any variable of Table 1 and no information is given about how to allocate a plot in, for example, D1 or D2. In another words, how can I distinguish between D1, D2, D4 and D5? If a new plot were selected for the study, what is the rule to allocate it in any of the existing levels?

[Response] Sorry for not making it clear. In the study, we categorized the different lands according to the number of rodent holes and community coverage, which has

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been added in the Materials and Method section.

P3007 L 13: Why were the plots divided in two subplots?

[Response] Including of subplots would contribute to make the analysis more robust (there would be more replicates within each level).

P3007 L18: I guess that the PVC collars were connected to something.

[Response] The PVC collars were inserted into soil. When measuring Rs, a chamber was put above the collar to finish the measuring of Rs.

P3008 L6: The brackets are not in the right position (see also P3008 L27).

[Response] We have changed the place of brackets.

P3009 1-5: As I said previously, I do not find justified the definition of six levels of degradation, since there is not any pattern to distinguish between levels on the same group. The ANOVA with the levels of degradation (D1-D6) should be removed and only the one with the groups of degradation (Group I and II) should be implemented. This would also contribute to make the analysis more robust (there would be more replicates within each level) and the result section clearer.

[Response] Thanks very much for your suggestion. We admit that it is difficult for a reader to know how an uncertain land is classified into D1-D6. In the study, we selected six habitats with different number of rodents holes and community coverage. We analyzed the CO_2 fluxes among different habitats by using ANOVA to test whether difference exists among the habitats. We have re-written the Data Analysis and Results section to make the descriptions in those parts clear. We hope it is satisfactory.

P3009 L9: Why the relation of SOC with Rs, Nee and ER is not analysed?

[Response] The relationships of SOC with CO_2 fluxes are insignificant therefore we did not put the result in the text.

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Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/6/C1372/2014/sed-6-C1372-2014-supplement.pdf

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Interactive comment on Solid Earth Discuss., 6, 3003, 2014.

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