

Dear Editor

Thank you for your patience with our manuscript numbered “BG-2021-313”. Based on the further comments from the reviewer and editor, we have revised the manuscript carefully again. We found that these questions and comments are valuable to improving the quality of this manuscript. Here, we submit both a clean and a track changed versions of manuscript to “Biogeosciences”.

The responses to the reviewer’ comments are following:

1. Three significant digits are probably more appropriate for values in the abstract and elsewhere; excessive precision is distracting.

Answer: Thanks for your comment. We have used two significant digits to revise the values in abstract and results.

2. On line 30 I'm not sure what 'richening the small mammalian herbivores' means. 'enriching our understanding'?

Answer: Great comment. We revised the “richening the small mammalian herbivores in relation to grassland ecosystem services” into “enriching our understanding of the small mammalian herbivores in relation to grassland ecosystem services”.

3. On line 33, please note a number of relevant references in this week's Science magazine that emphasizes the importance of grassy biomes globally, <https://www.science.org/journal/science>

Answer: Thank you for your comment. We have added the relevant references in this week's Science magazine that emphasizes the importance of grassy biomes globally.

4. 238 and elsewhere: add non-breaking spaces between values and units

Answer: Thanks for your comment. We have added non-breaking spaces between values and units throughout the manuscript.

5. Figure 2 and elsewhere: I'm not fully convinced that a parabolic model is appropriate because it's unclear if the mechanistic response is necessarily parabolic. I can see an increase and then decrease in response to the independent variable here, although no indication that it is necessarily symmetric. A brief justification of this choice of model would be forthcoming (noting that it does align with intermediate disturbance concepts).

Answer: Good comment. The simulation curves were not necessarily symmetric, and this is related to disturbance intensity of plateau pikas. In this field survey experiment, we could not collect all disturbance intensity of plateau (from 0 to maximum of active burrow entrances caused by plateau pikas). In the revision, we added the final regression models. The likelihood ratio test was used to select the final regression modes in Figure 2, including the palatable plant biomass (Fig. 2A), soil organic carbon stock (Fig. 2C), plant-species richness (Fig. 2D), soil total nitrogen (Fig. 2E), and phosphorus (Fig. 2F) stocks. These final regression models showed that disturbance intensities of plateau pika had a clear maximum value for the palatable plant biomass, soil organic carbon stock, plant-species richness, soil total nitrogen and phosphorus stocks, which was align with intermediate disturbance concepts. How to use the likelihood ratio test to select the final regression modes was explained in data analysis sector in original revision. We revised the relevant expression in abstract and results, and added a brief justification in the discussion.

The manuscript has been revised carefully and strictly according to your comments. We hope our modification and explanation is clear enough, however, if there is still any question, please do not hesitate to contact us.

Yours sincerely

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