

Earth Syst. Dynam. Discuss., referee comment RC1
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Comment on esd-2022-1

Anonymous Referee #1

Referee comment on "Coupling human and natural systems for sustainability: experience from China's Loess Plateau" by Bojie Fu et al., Earth Syst. Dynam. Discuss.,
<https://doi.org/10.5194/esd-2022-1-RC1>, 2022

Bojie Fu et al.: Coupling Human and Natural Systems for Sustainability: Experiences from China's Loess Plateau

General comments:

This paper provides a comprehensive overview of the conceptual cascade framework of "Pattern-Process-Service- Sustainability", and also provides a concrete example on the application of this framework at the Loess Plateau in China. This region has been subject to major vegetation restoration activities during several decades, and the impacts of these activities have been extensively studied by different methodologies. This accumulated research provides an excellent example of the value of systematic and integrated studies for solving socio-ecological problems on the very large scale.

I do not have any major comments on the methodologies or content, because the study mainly reviews results of already published material in well-known journals and puts them into the conceptual framework. The authors clearly have a very good knowledge about the recent literature in the field, and the context of the research.

Specific comments:

lines 66-58 I would suggest to use present tense (i.e. "is introduced" and "is systematically illustrated", because this refers to aims of the present paper. I would suggest checking this also in other places (e.g. Conclusions).

Section 3 China's Loess Plateau: I would propose to include a table giving some more details about the area, such as T, soil and vegetation types, population, etc.

lines 175-180 Is there a gradient in precipitation that would affect this NPP limit given and has there been any changes in precipitation during this period? Is climate change likely to cause any further water stress in this region that could affect these conclusions? These topics would require a little more discussion here.

lines 220-228 There is some repetition of text here vs. the Introduction, please check.

line 283 Use colon (:) after "Enhancing water security" or subheading here. The same goes for the other subsections ("Enhancing food security" and so on).

line 403-406 Future directions: I would assume that climate change impacts on NPP and water yield would be a key topic for future research?

line 550 This reference seems to be incomplete: Ouyang, Z., H, Z., Y, X., S, P., J, L., W, X., Q, W., L, Z., Y, X., and E, R.: Improvements.....

In conclusion, I think this is a valuable paper that deserves to be published after making these rather minor additions/changes suggested.