

# ***Interactive comment on “Reviews and syntheses: Anthropogenically breaking macro-ecospacial “chains”? – case review of HU Line” by Yi Lin and Martin Herold***

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Response to reviewer comments Response: Sincere thanks to the reviewer’s constructive comments.

General comments: Very interesting paper synthesising knowledge about the HU line and how people have tried to deal with it or break it in the past and predict its changes in the future using models. I have no major concerns about the paper, just a few comments. I think the abstract should be modified slightly in order to improve clarity for non-expert readers. I had some troubles understanding it. I would suggest working a bit on that. The concept of the HU- line is probably not enough widely known so that

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all readers understand what you mean when you refer to it. Just slight modifications on the text can solve this issue. I'm not sure if I'm checking a previous version of the paper, but I can still see a few typos and, I think, some mistakes in the use of language (see some of them below). Please, check the text thoroughly. I see you have now changed to "integrative data analysis". I'm not entirely comfortable with that term because, unless there's a clear definition somewhere that I'm not aware of, it seems to be a bit broad (you can integrate plenty of different types of data in a data analysis). I suggest elaborating a bit more on the type of analysis you're actually performing. Try to answer the question of what you are integrating in your analysis. To me it just looks like a review paper using data already available somewhere else. Response: The abstract has been revised accordingly. HU Line should not confuse the readers, as its emergence just followed its definition "transition zone". The manuscript has been fully revised again, particularly aiming at typos and mistakes in English uses. Pls. refer to the blue-colored words and sentences throughout the manuscript. The method was revised as "the strategy of integrative data analysis" – the schematic framework used in this review work for regularly using the data already available somewhere else, as the reviewer said. Minor comments: L. 20: change "human" for "humans" Response: Revised as "humans" accordingly. L. 37: "extensive interest is whether people can better the macroecosystem-related ecological" change better for improve? Response: Revised as "improve" accordingly. L. 43: Try to define or explain what you mean by "chains" the first time you mention them in the text. After reading the paper a few times, I think I now understand what it means, but it wasn't obvious to me the first time I saw it. This term also contributes a bit towards making the abstract a bit confusing. Response: Explanations have been added to clarify "chains", and pls. refer to L. 44-45. L. 82-84: That's a very interesting. In my mind, that relates to some sort of geoengineering, at least at a regional scale, but the term does not appear at all in the text. Is it just that these kinds of actions to break macro-ecospacial chains are not actually geoengineering? Consider adding something about it in the text, it may solve someone else's questions as well. Response: 'geoengineering' was not involved here,

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but the authors followingly added the reference to this initially climate-oriented concept in sub-Section 4.2 (pls. refer to L. 462). Thanks for the reviewer's professional advice. L. 90: Precipitation richness? I've never seen that term before. I suggest changing that for spatially heterogeneous precipitation patterns or something similar. Response: Revised as "patterns" accordingly. L. 93: "some ecosystems are preferred by life": This sentence strikes me as a bit awkward. An ecosystem has to be "alive" by definition (without living beings you would just have an abiotic habitat, not an ecosystem), so stating that some ecosystems are preferred by life I think it does not really make much sense. I suggest rephrasing the sentence towards something like: "some habitats are able to sustain more organisms, or more biomass: : : than others". Response: The sentence was maintained, since the narration here was aimed at the general-sense circumstances as highlighted in the reference work. L. 94: what do you mean with transfers? I suggest rephrasing that sentence. Response: Revised as "spatial transfers" for a more explicit definition. L. 118: "rich rainfalls": I suggest changing that for large amounts of precipitation or similar. Response: Revised as "large amount of rain" accordingly. L. 131: "thru": typo Response: Revised as "via". L. 195-196: Indeed! Response: Thanks for the reviewer's confirmation. L. 259-268: So, the western side has increased its population more than the right, is that correct? I think the authors infer that the change has been, at least, partially caused by GGP-kind programs. Could you elaborate a bit more on that? If conditions are so much worse in the west than in the east sounds counter-intuitive that population growth has been larger there in spite of GGP-programs. Response: The western side has increased its population more than the right in terms of population percentage but not in terms of population number, because of the large base of population and its change. The population increase in the western side is directly due to the economic development, instead of the GGP-kind programs. The focus here is that the population increasing in the western side leads to two kinds of counter eco-effects, as explained in the following sentences. This narration is to explain the complexity of anthropogenic eco-effects, still far from deriving an inference as the reviewer thought or giving a confirming answer to any questions

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aimed at in this study. L. 289-303: Here the authors seem to imply that demographic changes occur mainly because of changes in regional climate and that deforestation strengthen the HU line. I think it's possible climate changes drove these changes, but what about historical events and successive governments with different agendas? Can you provide some information about geopolitics of the region for that period of time? They may also be relevant in order to understand why the HU line emerged during this period. No remarkable comments thereafter. Response: Yes. Climate changes and deforestation did briefly lead to demographic transfers and the formation of HU Line for such a large region. Historical events and geopolitics played minor roles during this period, as little mentioned in the overview work (Wang, 1995).

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