

## ***Interactive comment on “Earth transformed: detailed mapping of global human modification from 1990 to 2017” by David M. Theobald et al.***

**Anonymous Referee #2**

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This new dataset represents an important advancement in our assessment of natural areas and human impacts. It will likely be useful to numerous global evaluations of conservation priority, threats, modeling potential processes, and structural connectivity (among others). Taking inventory of how humans impact nature is among the most important endeavors guiding how humans steward the planet. Thank you for this contribution.

My only major concern with the paper is how water is dealt with. If flow is regulated the water surface gets a human modification value, but if the water is unregulated the water surface gets an NA. This results in some odd patterns. For instance one of the Great Lakes is filled with values, but the other four are empty. Yellowstone Lake is empty but Jackson Lake in Grand Teton National Park, which is partially regulated

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has values. One of the key uses of these kinds of data products is to model connectivity of ecological processes or species movement. High human modification is associated with behavioral avoidance or higher risk of mortality. These kinds of gridded data are used frequently for these purposes. I recommend that the authors at least produce a version that has all water bodies masked out. I just read this paper that showed that dealing with water bodies is important for connectivity modeling: <https://www.nature.com/articles/s41598-020-63545-z>

One small point. I found the sentence in the abstract about “over the pause of a deep breath” confusing. I had to read it several times to understand what they meant. I think they can make the same point - which is a good one - with different wording.

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Interactive comment on Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2019-252>, 2020.

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