

Reply to reviewer points and further edits

(1) Figure 1, the right-hand sub-figure is blurry with almost all text characters unclear.

The figure comes from Pricope et al. 2013:

Pricope, N. G., Husak, G., Lopez-Carr, D., Funk, C., and Michaelsen, J.: The climate-population nexus in the East African Horn: Emerging degradation trends in rangeland and pastoral livelihood zones, *Global Environmental Change*, 23, 1525 – 1541, <https://doi.org/https://doi.org/10.1016/j.gloenvcha.2013.10.002>, 2013.

Before submitting the manuscript, I asked the author for a higher quality image and that is the one I have used. It looks no better in her original paper (see screen shot below). Therefore I have left it as it was.

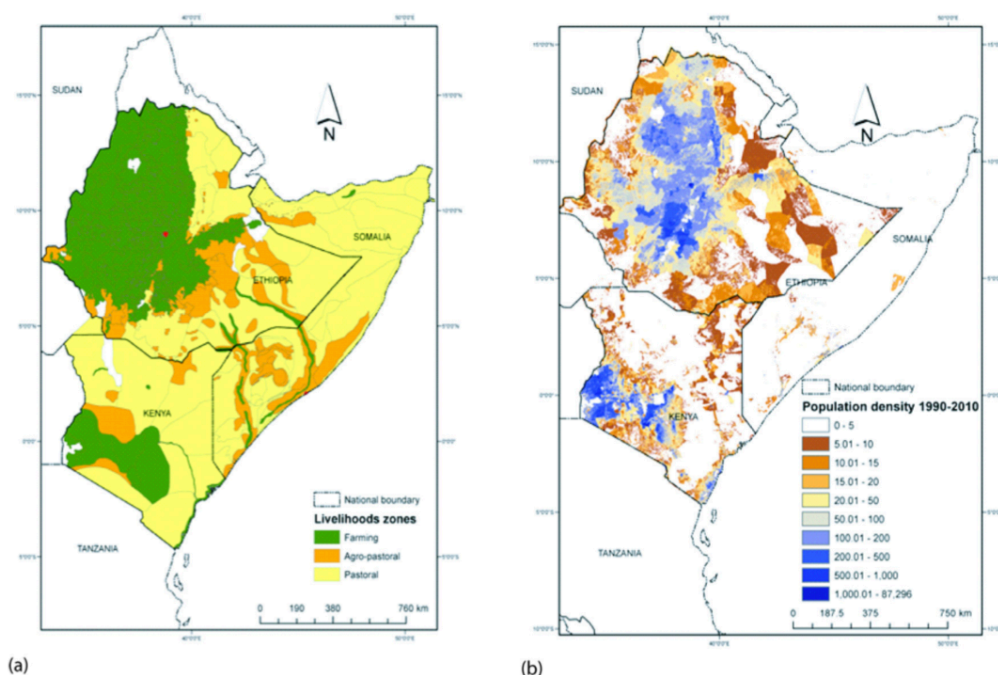


Fig. 1. (a) FEWS Net livelihoods zones map for Ethiopia, Kenya, and Somalia; (b) population density change map from 1990 to 2010 (based on the calculation in Eq. (1)).

woody savannas (often associated with shrub encroachment due to overgrazing, drying or changing fire regimes). However, this

the literature use this data for regional-scale analyses of land cover change. Due to the regional scale of our analysis, the lack of

(2) I will also suggest unifying the font characteristics (e.g., the font weight is bold or not) between Figure 2 and Figure 3. Some text characters (e.g., the labels of X-axis and Y-axis as well as the legend) could be enlarged to make them clearer in both figures.

While I appreciate the reviewer's eye for detail, the model experiments and production of the figures was a team effort and these 2 figures come from different sources. I would certainly change it if Figure 3 had vector graphics, but this is not the case. As it is not essential for the understanding of the paper, this suggestion has not been taken on. I have changed the font size for the x-axis and y-axis and legend in Figure 2, and Figure 3 has been enlarged.

(3) Figure 5, the font size of label in Y-axis label in the sub-figure describing PET could be enlarged to make them unified to other sub-figures.

The individual panels have now been scaled by the same scaling factor so that the sub-figures now have the same font sizes.

Further edits

References to Philip et al. 2019 (now Philip et al. 2020, published) and van Oldenborgh et al. 2019 (now van Oldenborgh et al. 2020, under review for a different journal) have been changed.

In Figure 4 the incorrect notation for the region West Ethiopia has been changed from WK to WE, and units used for precipitation and temperature are now mentioned.

The layout of the synthesis figure plots (Figure 5 and supplement figures) has been changed to be more space efficient, when combining the subpanels to one plot.

The way that panels are referred to in the figure captions has been standardised.

On page 4 L19-20, “tables 2 and ??” has been corrected to “tables 2 and 3”.

These edits do not change the meaning of the content of the text or figures.