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Conservation: Beyond population growth Response

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Response

Weldemichel *et al.* dismiss our argument that human population growth drives mounting pressures around protected areas and instead propose that these patterns are driven through land dispossession by authorities for conservation, causing concerns about environmental justice. However, population growth and the resulting increased livestock and land use changes are the more likely cause of the trends we observed.

The establishment of Mara conservancies in Kenya since 2004 [discussed in our Research Article and in (1)] cannot be the main cause of the observed changes because, as our Research Article makes clear, the onset of the Mara wildlife declines predates the conservancies by about 30 years. In other parts of Kenya, increased fencing of private lands, which also predates conservancies, is better explained by human population growth, increasing competition for grazing areas, and land use change (2, 3). Private land owners choose to establish wildlife conservancies (4, 5) because they are a viable land use alternative in drylands (1, 6).

Our Research Article shows that, along with the increased human population, total livestock numbers have increased by 54% in the Mara area, including inside conservancies, matching Kenya-wide trends (2, 7). Conservancies cover 16% of the Mara area we studied, whereas agriculture, which is expanding into drier areas (8), increased from 4.7% in 1984 to 26.7% in 2018 in the same area (as shown in table S3 of our Research Article). Increased livestock numbers, settlements, and agricultural conversion, all of which are direct consequences of human population growth (9, 10), thus far outweigh the effect of partial livestock restrictions in conservancies (11). We consistently found these patterns across the entire ecosystem spanning two countries, multiple ethnic groups, and different types of protection status.

The heart of the problem is that current conservation paradigms were designed when the human population in East Africa was a tenth of the current size, and the current institutions responsible for managing the coexistence of people and wildlife have not evolved accordingly (2, 8). It is an important political and societal responsibility to ensure that this new reality does not increase inequality and marginalization of socio-economically or politically weaker community members. Denying the importance of human population growth in Africa as the ultimate driver of change only blurs discussions of environmental justice and is dangerously short-sighted.

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