To whom it may concern,

We are pleased to submit our manuscript “*Gentrification drives patterns of alpha and beta diversity in cities*” as a research article in *Science*.

The inspiration for our manuscript stems from a 2020 review published in *Science* by co-author, Dr. Chris Schell, titled *“The ecological and evolutionary consequences of systemic racism in urban environments*.” Motivated by one of the questions Dr. Schell put forward in their paper, we set out to address how gentrification – the process of neighborhood change that includes demographic and economic shifts in historically disinvested neighborhoods whereby white, more educated, and higher income residents displace under-resourced residents – is associated with patterns of wildlife diversity across cities.

To do so, we leveraged a large-scale and systematic multi-city biodiversity monitoring survey, the Urban Wildlife Information Network, and compiled data from nearly 1000 sites across 23 U.S. cities. After controlling for the negative effect of impervious cover on mammal diversity we found that, on average, gentrified parts of a city had more species than not gentrified parts of a city. Furthermore, in some cities, gentrification was not associated with increased mammal diversity and instead led to different mammal communities in gentrified and not gentrified parts of the city. Overall, our results indicate that the impacts of gentrification extend to non-human animals, which highlights how some aspects of nature in cities, such as wildlife, are chronically inaccessible to marginalized human populations.

We believe that our large-scale investigation into how social processes like gentrification influence urban biodiversity fits the scope of this journal and will be of broad interest to the diverse readership of *Science* for three reasons. First, our study has interdisciplinary relevance as it bridges the gap between urban planning, geography, economics, and ecology. As such, our manuscript provides opportunities for readers from disparate backgrounds to engage with our findings. Second, while scholarship on the association between gentrification and ecological processes is relatively new, recent research underscores the far-reaching applicability of this issue. For example, a Halsey et al. (2023) paper in *Frontiers in Ecology and the Environment* discusses the possible relationship between gentrification and tick-borne disease risk and a Hubbard and Brooks (2021) paper in *Progress in Human Geography* articulates how gentrification challenges human and non-human entities alike. Unlike these papers, however, our manuscript empirically demonstrates the association between gentrification and urban biodiversity. Third, urbanization is a global phenomenon that has far-reaching consequences. As the world becomes increasingly urban and more people move into cities, the effect of gentrification on local ecosystems becomes increasingly relevant. Therefore, the topics we investigate in our study hold global significance, making them pertinent to the international readership of *Science*.

Thank you for your consideration of our manuscript. All data and code are available on GitHub at [www.github.com/mfidino/uwin-gentrification](http://www.github.com/mfidino/uwin-gentrification), and pending acceptance of the article, will be archived on Zenodo and a DOI will be provided. No other colleagues, save for my co-authors, have reviewed this manuscript prior to submission. Further, none of the material in this manuscript has been published or is under consideration elsewhere.

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