



Impact of public transportation on urban green space distribution and access in New York City

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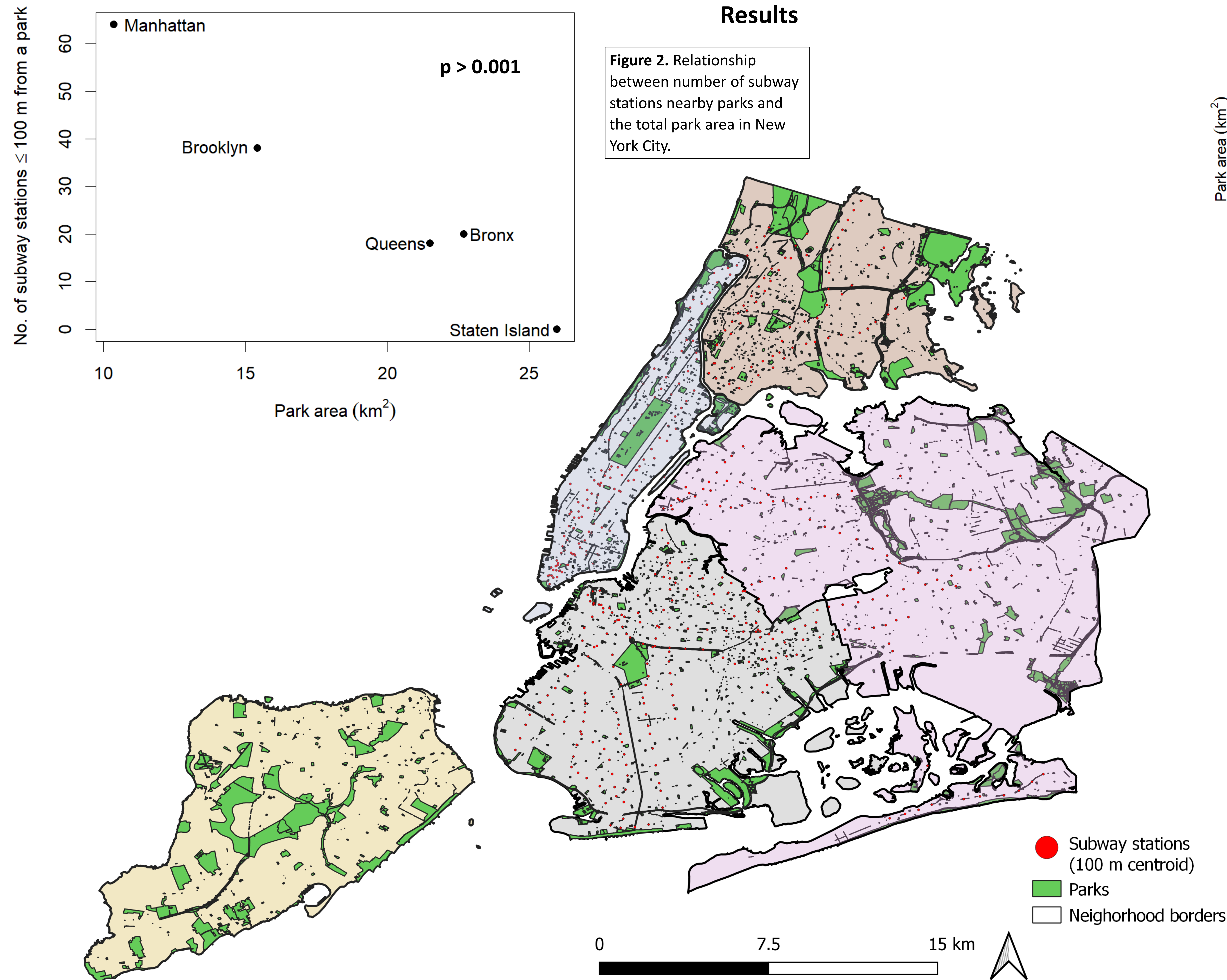
Introduction

- Cities are expanding across the globe and more natural areas are being converted to urban land⁵.
- Experiencing nature is vital for the health and wellbeing of urbanites³.
- Our goal was to assess the relationship between **public transportation and abundance of green spaces** in NYC.
- Access to large green spaces through public transportation is important but may not be evenly distributed throughout cities.

Methods

- Open geographical and **demographical data** obtained from official New York State government databases^{1,2} were mapped using QGIS (Fig 1).
- Variables included **total borough area, total area of parks, total number of subway stations, number of subway stops within 100 meters of a park**.
- Maps were used to **compare the distribution of parks and subway transit stations** in five NYC boroughs*.
- Relationships between variables were assessed using either linear models or generalized linear models in R assuming a Poisson distribution for count data.

* Staten Island Railroad was not considered in this analysis but may contribute to access to small green spaces in Staten Island

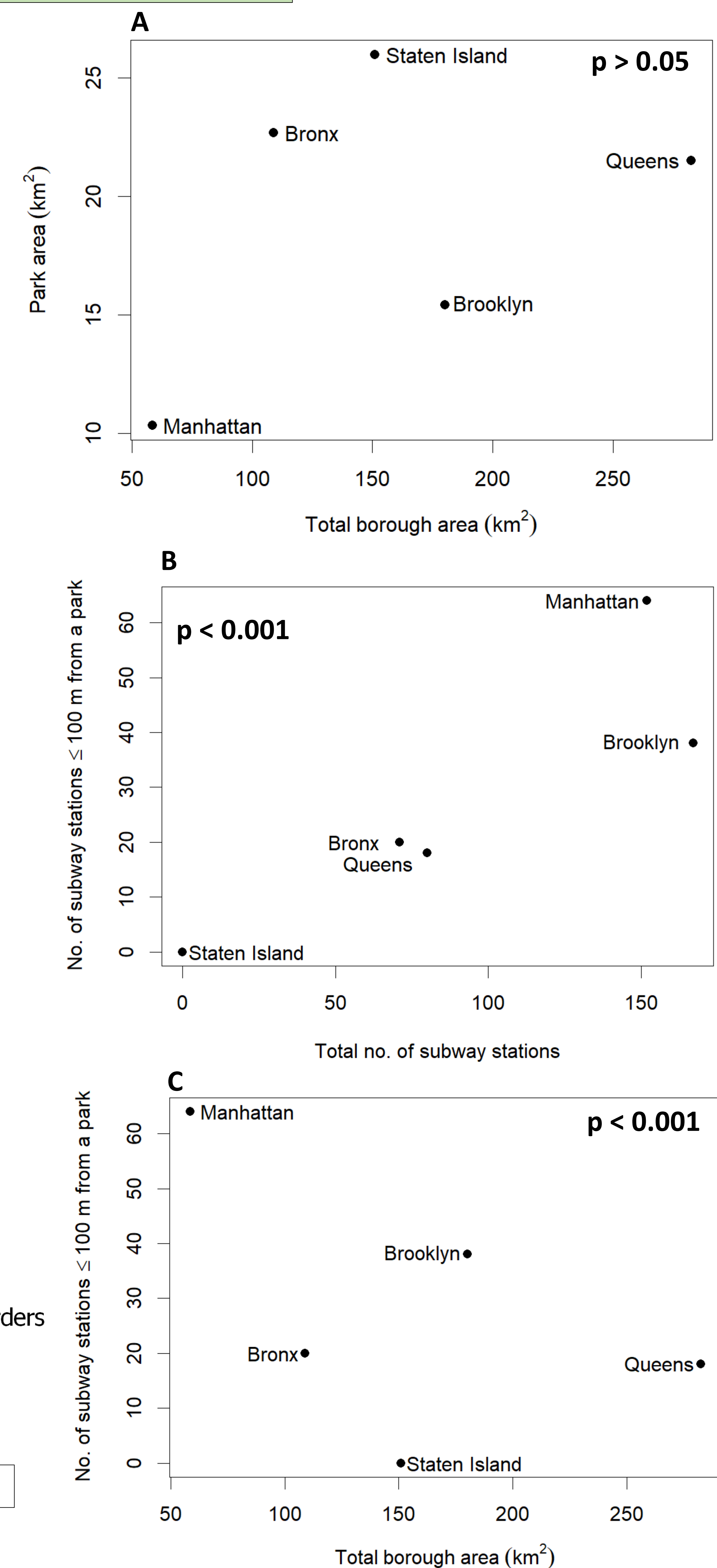
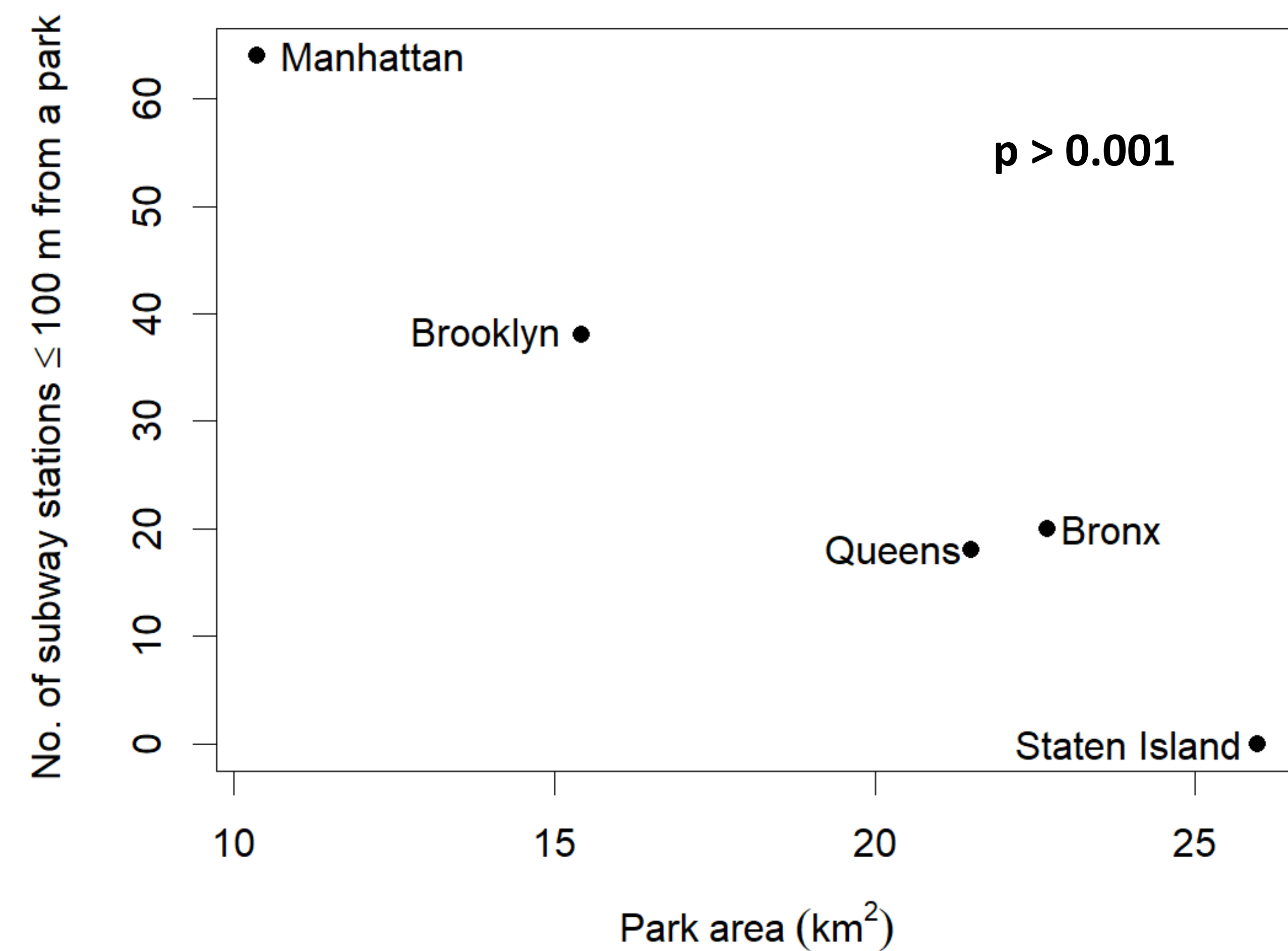


Conclusion

- Subway stations are significantly more abundant around parks in Manhattan than in any other borough, but Manhattan is the smallest borough and has the least amount of green space (Fig 2, Fig 3).
- The subway system may connect Manhattan parks to local, commercial, and tourism interests.
- Smaller parks in the outer boroughs are not as connected through the subway system (Fig 2), making them more of local interest instead of city-wide concern.
- Green space is **important for more sustainable cities** and connectivity between green spaces could help encourage their use and protection.

Results

Figure 2. Relationship between number of subway stations nearby parks and the total park area in New York City.



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