



1. Aim

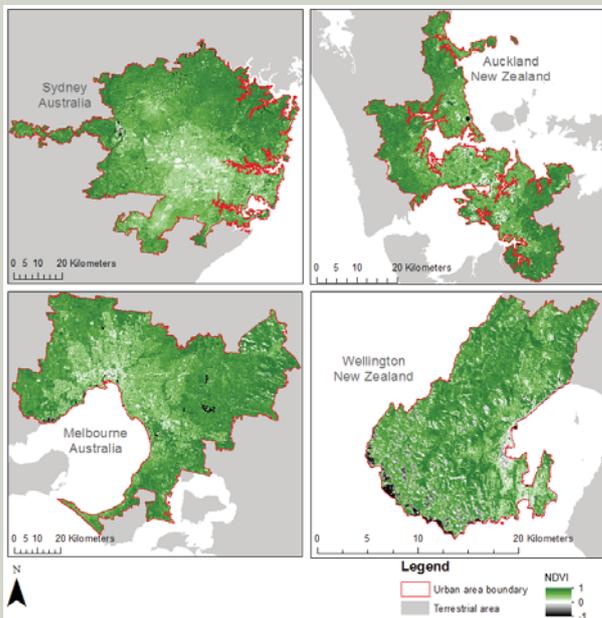
To determine if there is a relationship between nature and urban residents' wellbeing in four cities across Oceania.

2. Introduction

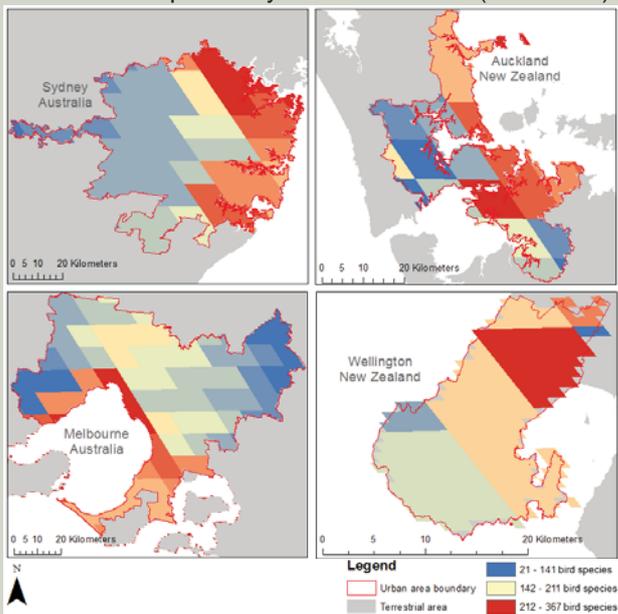
- More than half of the world's population lives in cities¹.
- There is increasing interest in the relationship between biodiversity and human wellbeing².
- Nature is important to human wellbeing in urban environments^{2,3}.

4. Nature

The NDVI measures photosynthetic rigour of vegetation via satellite imaging.



Bird richness is positively related to NDVI ($P=0.0386$).



3. Methods

- GIS exploration at postcode level of:
 - Normalised difference vegetation index (NDVI), and
 - Bird species richness⁴.
- Voluntary online survey of urban residents to collect:
 - How respondents interact with nature,
 - How respondents value nature,
 - How much respondents know about nature, and
 - Self-reported wellbeing.
- Focus groups with survey respondent volunteers.

5. Wellbeing

Wellbeing is a composite measure taken from self-related wellbeing questionnaires in the literature. Overall, self-reported wellbeing was positively related with both NDVI and bird richness.

Wellbeing	Overall	
	P Value	R Square
NDVI (Mean)	<0.001	0.010
Bird Richness	0.010	0.004

Inconsistent relationships across cities are likely to be due to the lower response rates achieved in Auckland and Wellington, New Zealand. Although there is a relationship between NDVI and wellbeing, the low R Square results indicate a more nuanced relationship.

Wellbeing	Auckland, NZ n=159		Melbourne, Au n=700		Sydney, Au n=875		Wellington, NZ n=85	
	P Value	R Square	P Value	R Square	P Value	R Square	P Value	R Square
NDVI (Mean)	0.460	0.005	0.028	0.008	0.001	0.016	0.588	0.005
Bird Richness	0.493	0.004	0.467	0.001	0.893	<0.001	0.804	0.001

6. Conclusions

- There is a link between nature and human wellbeing in the study cities, but simple quantitative measures do not capture the complex relationships between wellbeing and nature.
- Qualitative approaches will provide further detail to elucidate the factors driving the relationship.
- Other aspects of the survey, such as how much urban residents know about nature and how they value it, are worth further investigation.

7. References

1. World Health Organization. (2010). Hidden cities: unmasking and overcoming health inequities in urban settings. Kobe, Japan: World Health Organization.
2. Chivian, E., & Bernstein, A. S. (Eds.). (2008). Sustaining Life: How human health depends on biodiversity. New York: Oxford University Press Inc.
3. Taylor, L., & Hochuli, D. F. (2015). Creating better cities: how biodiversity and ecosystem functioning enhance urban residents' wellbeing. *Urban Ecosystems*, 18(3), 747-762.
4. Data from BiodiversityMapping.org and BirdLife International.

