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Grey to Green Transition: mapping a way forward for green walls

Ashley NJ Douglas

Peter J Irga and Fraser R Torpy

The Grey Urban Landscape

Green Goals

- Cities aim to achieve green goals in the future, such as:
  - Sydney – 40% green cover by 2050
  - Melbourne – 40% green cover by 2040
  - Brisbane – 40% green cover by 2031
  - Adelaide – 47% green cover by 2045
  - Perth – 30% green cover by 2046

It’s Time To Grow Up

How many walls can we vertically green?

- The aims were to:
  - Develop an evaluation tool for green wall retrofitability
  - Validate the tool by determining the quantity of potential green walls in five major cities
  - Compare the cities to understand the different levels of retrofit suitability of these areas

The Green Wall Evaluation Tool

- Initial exclusionary set of criteria were applied

Elimination Characteristics
Glazed façades of 50% or more
Walls with no ground access (e.g. overhanging balcony or adjoining building)
Driveways/garage doors
Heritage listed front façades
Art (excluding ‘tagging’, but including street art)
Parks, playing fields and areas that do not have kerb side walls

The Green Wall Evaluation Tool

- Green wall retrofit criteria resulting in a score between 0 and 6

0 to 2 = Limited 3 to 4 = Moderate 5 to 6 = High

Questions	Score	
Does the wall have the capacity to have soil at its base?	Yes? +1	No? 0
Is the wall next to a very narrow walkway or driveway?	Yes? 0	No? +1
Can the wall have a drainage pipe at its base or can excess water flow into a nearby gutter?	Yes? +1	No? 0
Is this wall in an area that is clearly used for storage of bins?	Yes? 0	No? +1
Is there a fire exit on this wall?	Yes? 0	No? +1
Does the wall have any services/service meters on it, or does the base of the wall have a service access point directly in front of it?	Yes? 0	No? +1

Green Wall Evaluation Validation

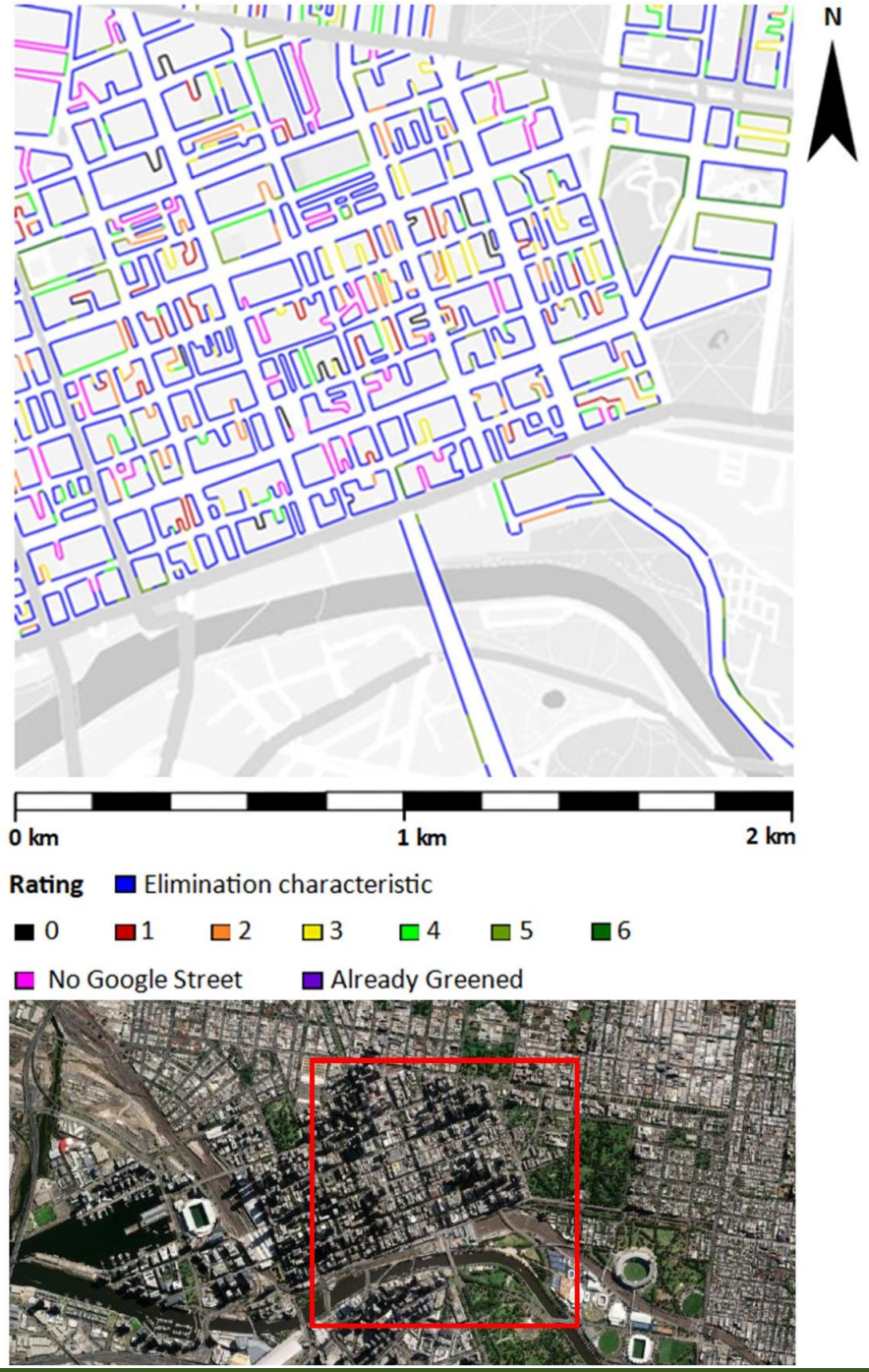
- Used across five Australian cities
  - Sydney
  - Melbourne
  - Brisbane
  - Perth
  - Adelaide
- 4km^2 area within each city centre was assessed
- Each wall was evaluated and rated accordingly
- Maps of those green wall ratings were created

Sydney

- Demonstrated high degree of greening potential:
  - Fewest number of walls eliminated (57%)
  - A large proportion of highly rated walls (9%)
  - Greatest length of moderately retrofitable walls (20%)
- Second greatest length of walls with limited retrofitability (5%)
- Greatest length of already greened walls
- Retrofitable walls were more common in the east and south regions

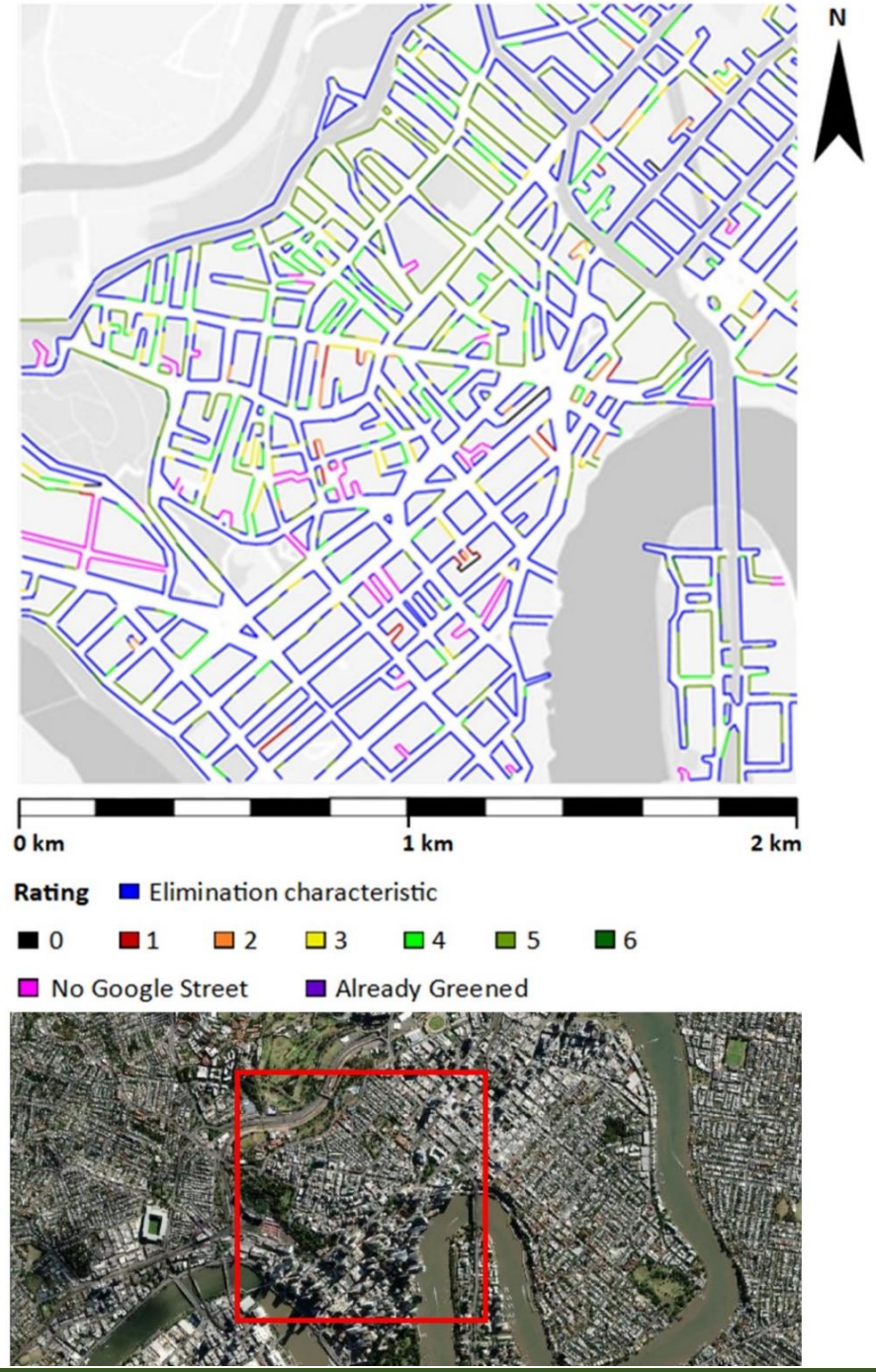
Melbourne

- Demonstrated high degree of greening potential:
  - A large proportion of highly rated walls (7%)
  - Third highest for moderately rated walls (10%)
  - Highest frequency of limited retrofitability ratings (10%)
- Second highest percentage of already greened walls
- Northern half of the area has greater proportion of feasible walls



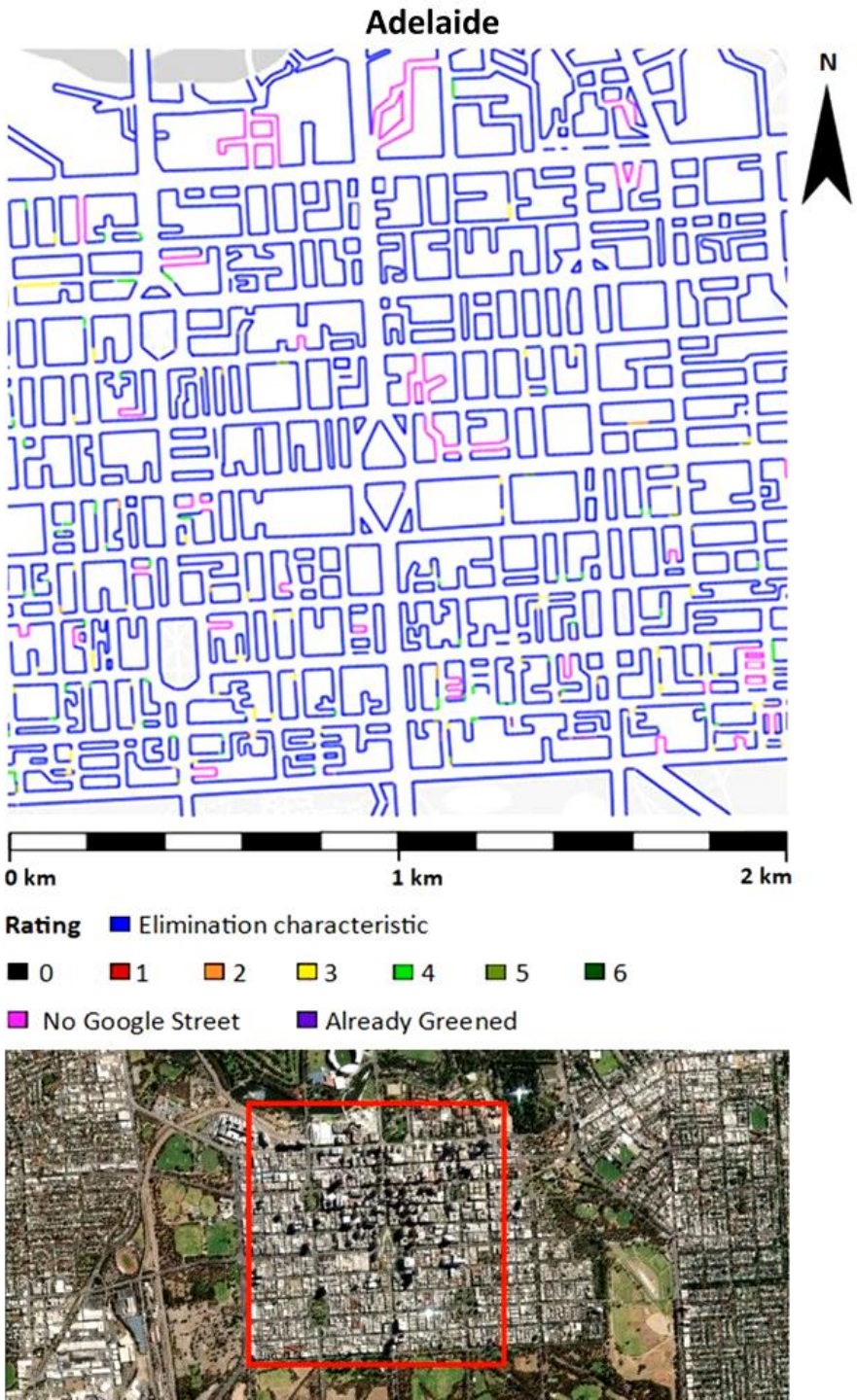
Brisbane

- Demonstrated high degree of greening potential:
  - Greatest percentage of highly retrofitable walls (18%)
  - Second lowest number of eliminated walls (61%)
- Second lowest percentage of existing greened walls
- North-west region had the most walls with high green wall suitability ratings



Perth and Adelaide

- Lowest green walls potential
  - Less than 4% of walls assessed suitable for retrofitting
  - Highest percentages of eliminated walls (over 91%)
- Both cities were spatially homogeneous compared to the other cities
- Green wall retrofitting is limited largely due to the glazed façades and garage doors

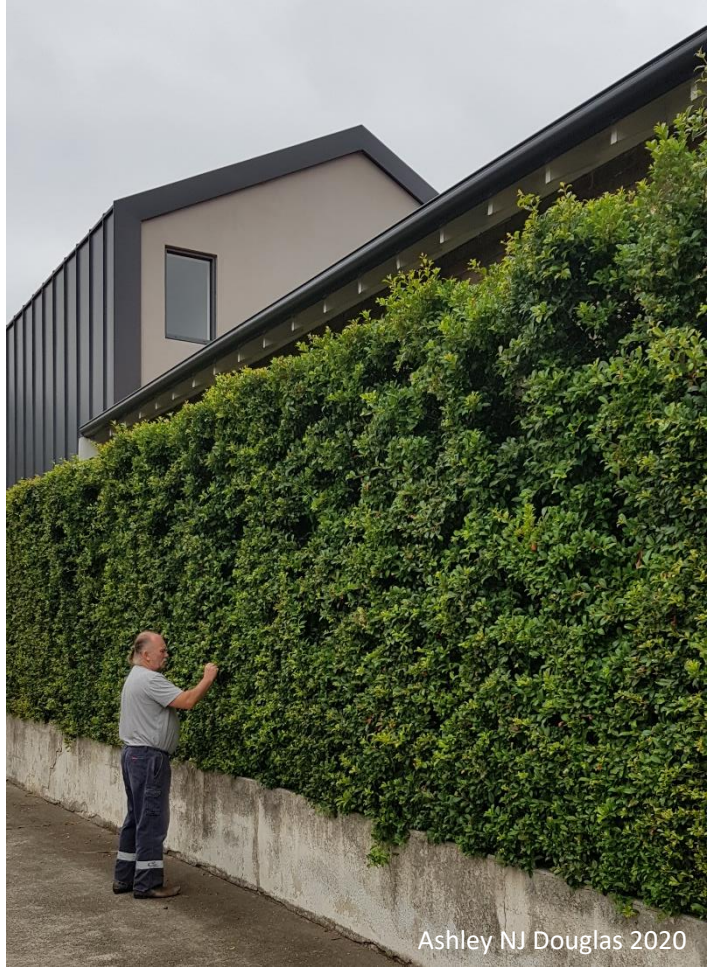


Can We Do What We Say?

- Cities with a high degree of green wall retrofit potential could reach their green goals through green wall implementation
- Cities with a low green wall potential may need to incorporate other greening solutions to achieve these targets
- Spatial trends revealed the highest probability of eliminated walls were in the city centre
- A long way to go - less than 1% of surveyed walls were already greened
- Importance of green walls and green roofs as a solution to the space constrained areas

Further Outcomes And Implications

- The evaluation tool was designed with accessibility and simplicity in mind:
  - Requires minimal training or resources
  - Could be applied globally
  - Broad scale applications of an systematic method
  - Enables comparison between areas
- This tool could used in conjunction with remote sensing techniques to provide more detailed information and evaluations



Thank you

Ashley.Douglas@uts.edu.au

Youtube: https://www.youtube.com/watch?v=-3KUUGyUwAg