

'New natures: Landscape architecture, ecological and urban design from the scale of the street to the region'



Simon Kilbane
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A global view

http://www.nasa.gov/centers/goddard/images/content/638831main_globe_east_2048.jpg



How many species?

<http://i.unu.edu/media/ourworld.unu.edu-en/article/5239/species.jpg>

(Mora et al. 2011)



Approx. 8,700,000 species on Earth... these are the 99.99%
(86% still unidentified)

How many species?

<http://i.unu.edu/media/ourworld.unu.edu-en/article/5239/species.jpg>

(Mora et al. 2011)



Big issues: climate change and impacts

<https://d.ibtimes.co.uk/en/full/1396572/hurricane-katrina.jpg>



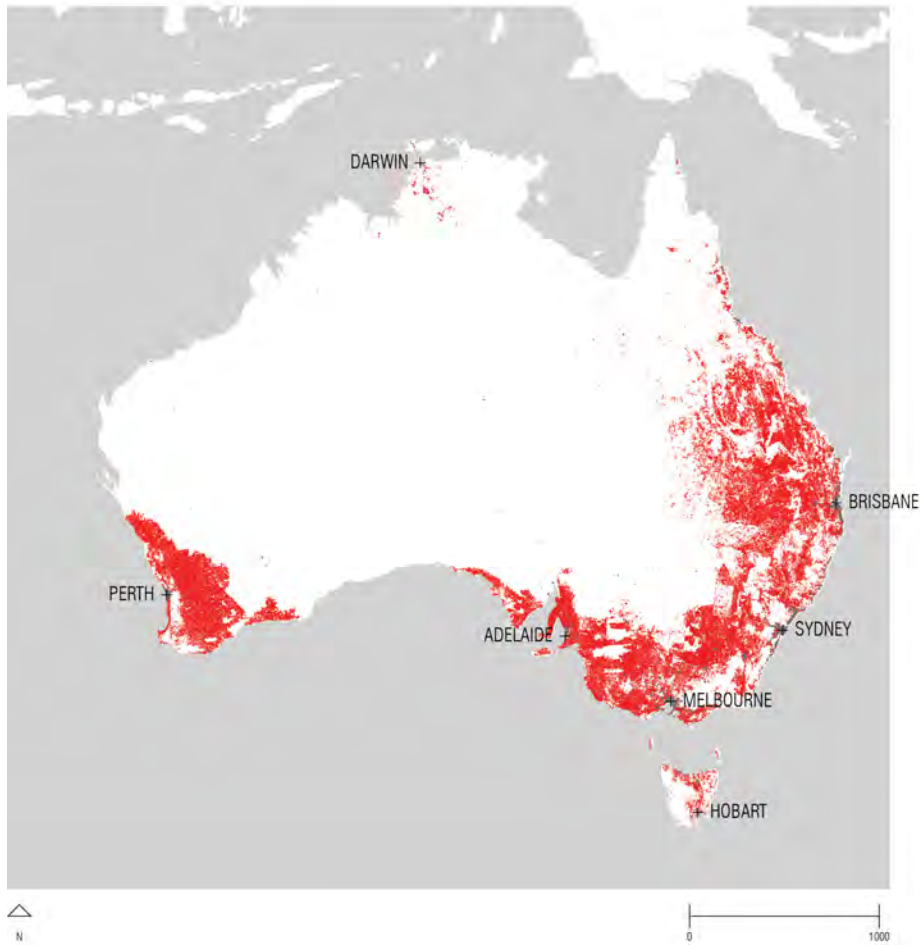
Big issues: urbanisation and human population growth/land and resource demand

<http://ridolfirio.com.br/content/uploads/2014/12/favela-pacificate1.jpg>

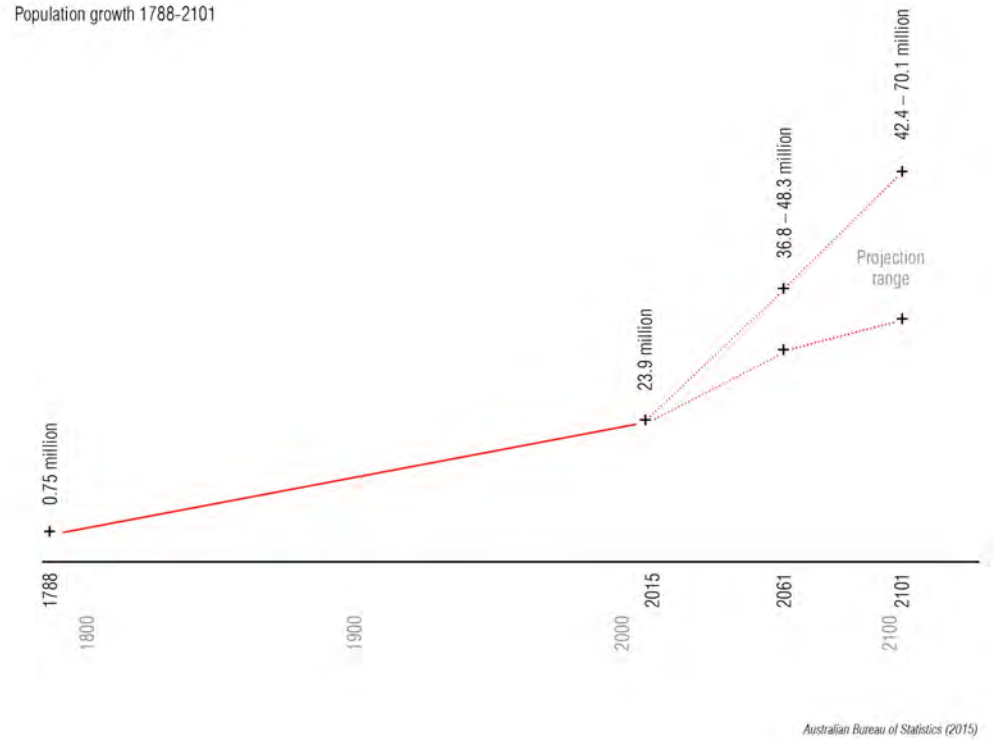


Big issues: species loss

<http://assets.inhabitat.com/wp-content/blogs.dir/1/files/2015/11/amazon-deforestation01.jpg>

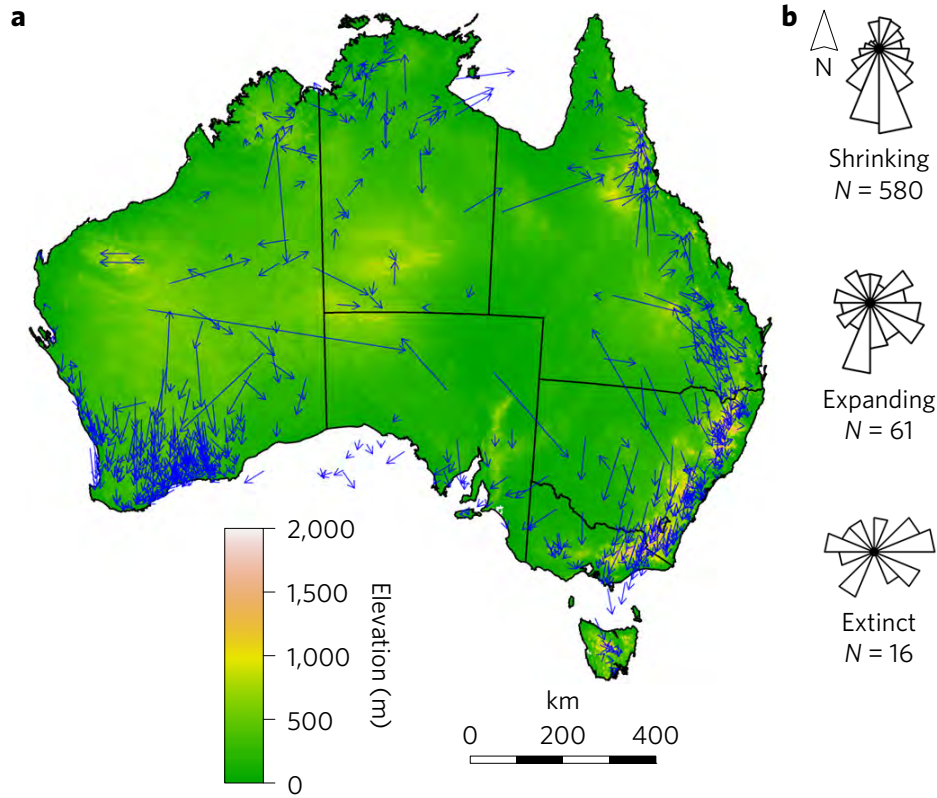


Population growth 1788-2101



- Cleared areas
- Urban areas (Geoscience Australia, 2007)

Australia: clearing, urbanisation and population growth



Australia: climate change and Eucalyptus distribution, loss of species
...identity

Gonzalez-Orozco et al. (2016)

Kilbane (2013)



Australia: species loss
Christmas Island Pippistrelle *Pippistrelis murrayi*

<http://martinecologylab.files.wordpress.com/2012/05/lindy-lumsden-christmas-island-pipistrelle-1.jpg>

IUCN (2014b)



Australia: species loss
Bramble Cay Melomys *Melomys rubicola*

<http://cdn.theconversation.com/files/31065/width1356x668/q8hdjvmh-1378784611.jpg>

Presey & Kim (2015)

Wildlife

Australia quietly adds 49 species to threatened and endangered lists

Brush-tailed bettong, three-toed snake-tooth skink, swift parrot and types of orchid and albatross listed

Elle Hunt

@mle_elle

Saturday 7 May 2016 09:00 AEST



This article is 7 months old



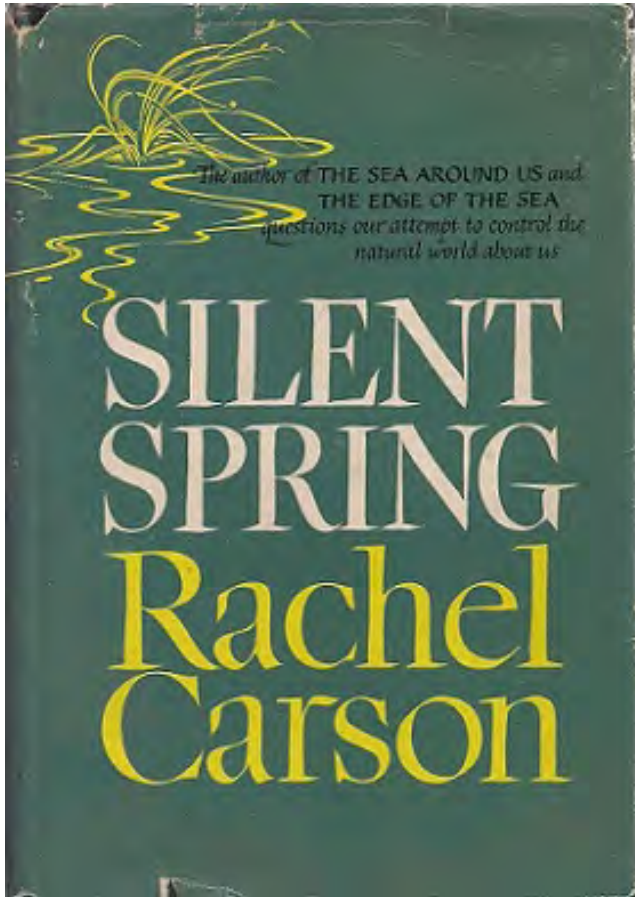
A ghost bat receives a medical check-up in Darwin. Ghost hats are native to Australia and are named for the

www.theguardian.com/au/environment

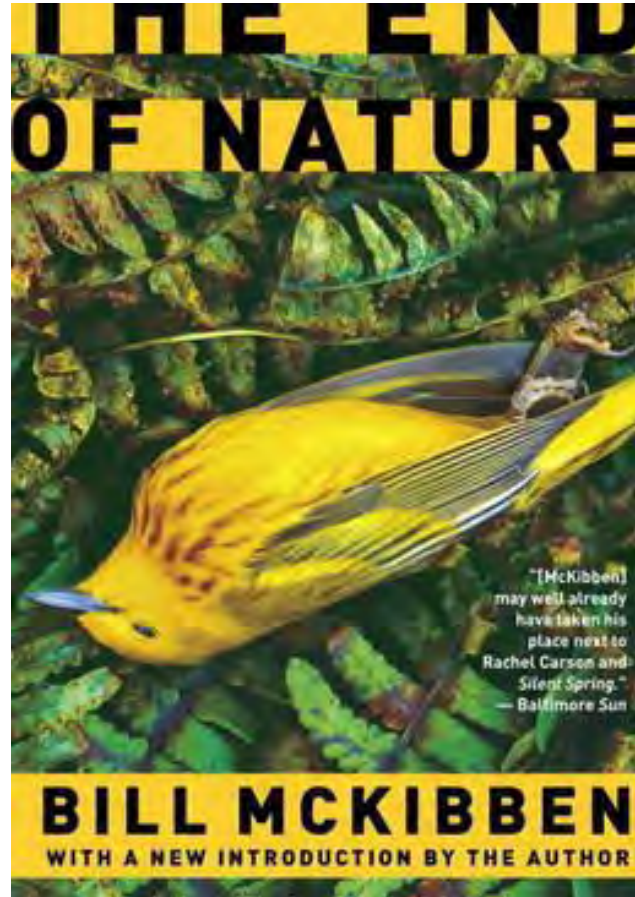
Guardian, 7th May 2016 ...many are those found in urban areas

https://www.theguardian.com/environment/2016/may/07/australia-quietly-adds-49-species-to-threatened-and-endangered-lists?CMP=soc_567

1962



1989



End of Nature?

<https://upload.wikimedia.org/wikipedia/en/a/ac/SilentSpring.jpg>

<https://s-media-cache-ak0.pinimg.com/736x/fe/7b/ea/fe7beaf3a472671f7f71da4787fddc26.jpg>

Early artists that influenced the creation of national parks

Albert Bierstadt 'The Hetch-Hetchy Valley in California' (1874-1880)



<http://www.intimeandplace.org/HetchHetchy/>

Thomas Moran 'Grand Canyon of the Yellowstone' (1872)



http://americanart.si.edu/images/L/L.1968.84.1_1a.jpg

William Jackson 'El Capitan' (1899)



Detroit Publishing Co, C. C. & Detroit Publishing Co, P., Jackson, W. H., photographer. (1899) California, El Capitan, Yosemite Valley. C. [Image] Retrieved from the Library of Congress, <https://www.loc.gov/item/det1994008644/PP>.

Eugene Von Guerard's 'Mount Kosciusko' (1864)



'Mount Kosciusko from Mount Hope Ranges' (1866)



<http://nga.gov.au/exhibition/turnertomonet/Images/LRG/48469.jpg>

<http://content.ngv.vic.gov.au/retrieve.php?size=1280&type=image&vernonID=5679>

'Nature' as distant and wild, separate from self

20th century photographic imagery that influenced the expansion of the national park concept

Adams, Ansel, 1902-1984 'The Tetons and Snake River' (1942)



https://upload.wikimedia.org/wikipedia/commons/thumb/2/21/Adams_The_Tetons_and_the_Snake_River.jpg/600px-Adams_The_Tetons_and_the_Snake_River.jpg

Dombrovskis, Peter, 1945-1996. 'Rock Island Bend, Franklin River, South' (1979)



<http://nla.gov.au/nla.pic-an6631500-v>

'Nature' as distant and wild, separate from self

http://www.nasa.gov/centers/goddard/images/content/638831main_globe_east_2048.jpg



Re-framing nature: novel ecosystems

(Tredici 2014)



Novel ecosystems: Oostvaardersplassen, Netherlands

<https://www.flickr.com/photos/firefly3k>

<https://www.flickr.com/photos/edwin-hoek>



Leary et al.

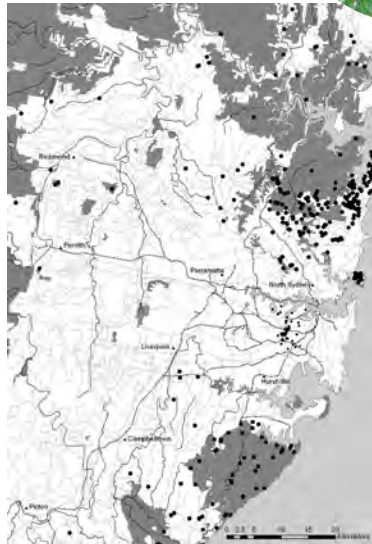


Figure 1. NPWS Wildlife Atlas records of long-nosed bandicoots around Sydney since 1988. Dark shaded areas represent protected areas. Pale grey lines represent major roads. Dark line lines are major rivers and the lines with cross hair represents the rail line. Dots show Atlas records and squares show all records (diggings, public reports, sightings and radio-tracking) in the inner west.

416

The natural history of Sydney

Leary et al.

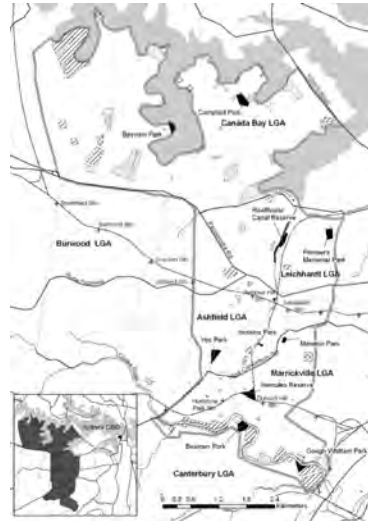


Figure 2. Area searched for bandicoot diggings showing urban parks searched. The boundary of the search area is shown by a wide grey line. Diagonal hatching shows parks that were inspected on foot where no diggings were found. Stippled areas show those parks inspected from the vehicle and identified not to have suitable habitat. Solid black shapes show parks in which "possible diggings" were found and are identified by name where known. Dashed grey lines show local government area boundaries. Solid black lines show major roads, grey solid lines show drainage and lines with cross hairs represent the rail line. The inset shows the search area in relation to the Sydney Central Business District (CBD).

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The natural history of Sydney

Yippee bandicoots of inner western Sydney



Figure 3. Location of carcasses, live animals, and reports from the public. Solid circles indicate animals trapped or radio tracked (animals radio-tracked are shown by a single dot in the vicinity of the church property for simplicity). Crosses indicate bandicoot carcasses (solid crosses are confirmed records and open crosses are unconfirmed records). Squares indicate locations of diggings. Solid squares show parks where "possible" diggings were recorded by us, and open squares indicate reports of diggings from the public. The question marks indicate unconfirmed sightings reported by the general public. Dashed grey lines show local government area boundaries. Solid black lines show major roads, solid grey lines show drainage lines and lines with cross hairs are the rail line.

The natural history of Sydney

419

Yippee bandicoots of inner western Sydney

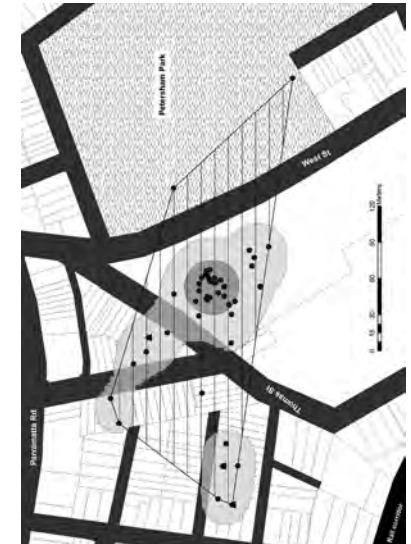


Figure 4. Radio-tracking lines and home range of female 2. Solid circles show radio-tracking lines of animals whilst active and triangles show nest sites. The diagonal hatched area shows home range area as a MCP. The light grey shaded area shows the 95% and the dark grey area shows the 50% (core use area).

The natural history of Sydney

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Novel ecosystems/relic (ghost) population... conflict with the urban Isolated population of Long-nosed Bandicoot (*Perameles nasuta*), Sydney's Inner West

Leary et al. (2010)

'major problem'

'dead corpse... something that looks like a massive rat'

'endangered species ...there must be hundreds of them here'



The screenshot shows a forum post on Whirlpool.net.au. The forum title is 'Bandicoots destroying the back yard'. The user 'Bauhn' (Whirlpool Enthusiast) posted on 9 July 2011. The post content reads: 'I have had a major problem all year long. I have tiny holes in the lawn, and landscaped gardens everywhere. Every morning there is something destroyed. This morning I found a dead corpse, thanks to my dog, of something that looks like a massive rat. After searching around the internet, I have found out that it was a bandicoot. After doing some research, I have found out that this is an endangered specie. But yet, if that was the case, our acreage wouldn't be so devastated. There must be hundreds of them here. Now I understand why we have so few bugs, and nearly no christmas beetles this year. That is a plus, but not to the extent of what is happening to the garden. Any ideas on what to do? Here is some information that I have found: http://www.derm.qld.gov.au/wildlife-ecosystems/wildlife/living_with_wildlife/bandicoots.html <http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=20107>'

Figure 1. Whirlpool website home page for the bandicoots forum. Sydney, 2016. Dark shaded area represents the forum title. Light grey lines represent major roads. Dark blue lines are major rivers and the blue with white lines represent the rail line. Dark blue lines indicate public transport routes. Light blue lines represent the rail line. Dark blue lines indicate public transport routes. Light blue lines represent the rail line. The blue lines represent the rail line. The blue lines represent the rail line.

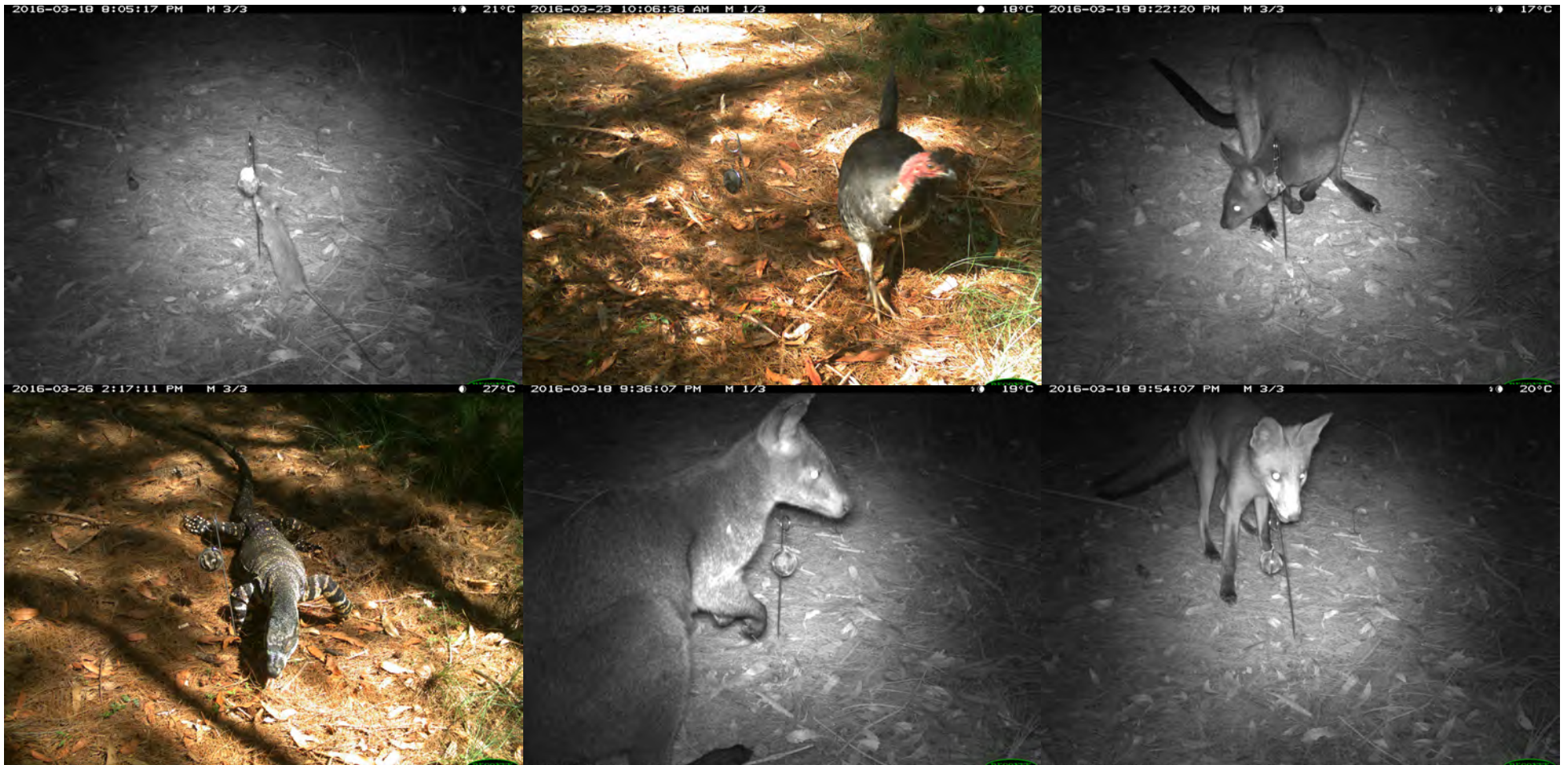
Figure 2. Area searched for bandicoot sightings showing urban participation. The boundary of the search area is shown by a white line. The shaded area shows the area that was searched for bandicoot sightings. The shaded area shows the area that was searched for bandicoot sightings. The shaded area shows the area that was searched for bandicoot sightings.

Figure 3. Number of sightings for animals and reports from the public. Solid circles indicate animal sightings or other sightings. Solid circles indicate animal sightings or other sightings. Solid circles indicate animal sightings or other sightings.

Figure 4. Public sighting lines and known range of bandicoot. Solid circles show public sighting lines of animals which occur in public areas. Solid circles show public sighting lines of animals which occur in public areas. Solid circles show public sighting lines of animals which occur in public areas.

Novel ecosystems/relic (ghost) population... conflict with the urban
Isolated population of Long-nosed Bandicoot (*Perameles nasuta*), Sydney's Inner West


<http://forums.whirlpool.net.au/archive/1638277> (accessed Oct 2016)



Novel ecosystems: domestic gardens?
What's in yours?

1. Research and consultation
2. Mapping and on-site explorations
3. Conceptual ideation *
4. Detailed design *

...could a design approach help to articulate a rapprochement between nature and culture?

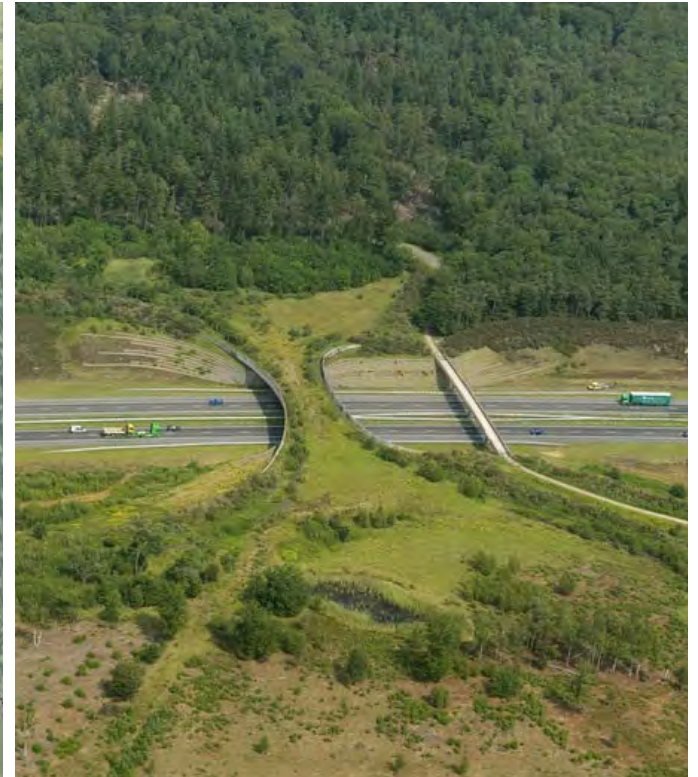


Landscape Architectural tools and methodology



STEET SCALE | New nature: small scale design in urban areas: insect hotels + beehives (Vienna, Austria)

Across a range of scales...



STEET SCALE | Landscape Architecture: wildlife as client
ARC Wildlife Crossing (HNTB MVVA), Colorado + NEN Ecoduct near Arnhem, Netherlands

<http://arc-solutions.org/wp-content/uploads/2012/03/HNTB+MVVA-Site-Plan.jpg>

<http://twistedifter.files.wordpress.com/2012/07/the-borkeld-netherlands-animal-bridge-wildlife-crossing-overpass.jpg?w=580&h=698>

Project B.A.T.

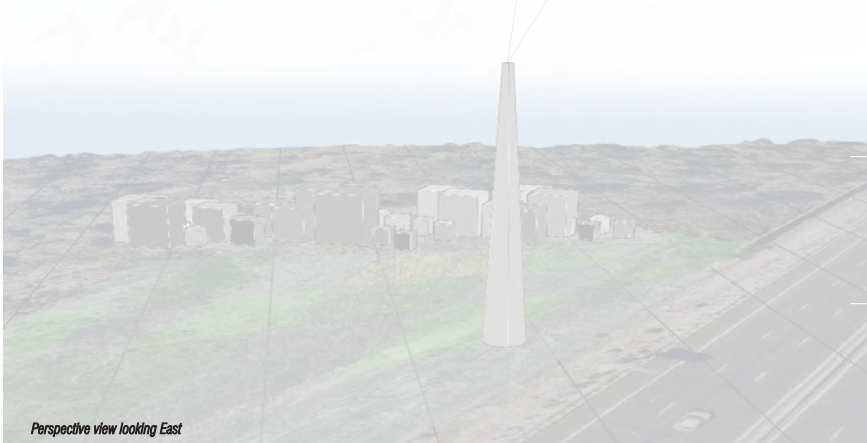
Informing the public and ensuring the longevity of bats in the Sydney region

Bats in Sydney face serious challenges to their longevity. A combination of lack of appreciation for these flying mammals and direct threats to their habitat and food supply has become more acute in recent years. While land clearing since colonial times has meant the loss of habitat and alteration of food supply, contemporary threats now include the contest over airspace, trees, parks and gardens and the underside of buildings and structures across the city. Some species including the Flying Fox (*Pteropus alecto*) are now present in augmented numbers and are considered by citizens as a source of noise, faeces, smell, disease. As such, measures have been employed to move growing populations – that have thrived in the presence of food-heavy suburban gardens – by various means including smoking, use of sound and light and even government-endorsed culling.

Concern for Sydney bats is four-fold. Firstly, general ecological health can be maintained through seed dispersal; second, bats help keep insect populations under control; third, this region possesses 28 of Australia's 90 bat species of which 11 are listed as 'vulnerable' by the *Threatened Species Conservation Act* (1995) and are protected by national legislation (the EPBC act); finally, Sydney bats have an intrinsic value and contribute to the character of Sydney as a city.

This project asserts that bats hold a valuable place in the urban environment of Sydney and prescribes an approach towards their longevity through three key moves:

1. The *Bat-o-tel* provides nesting for all 24 species through simple custom-built nesting structures. These structures, constructed in perforated steel in varying shades of grey sit inconspicuously at the rear of the site and are tailored to individual species through specific apertures and levels of enclosure.
2. The *Bat-o-meter* acts to inform the public of *bat-o-tel* population health. Coloured LED rings illuminate a 25 metre tower located adjacent to the southbound carriageway. This acts to inform passing motorists of the health of the population (red=unhealthy/green=healthy population).
3. The *Bat-spotlight* playfully animates the sky with a familiar twist of an iconic bat symbol and simple physical signage identifies the *bat-o-tel* (for bats and humans alike).



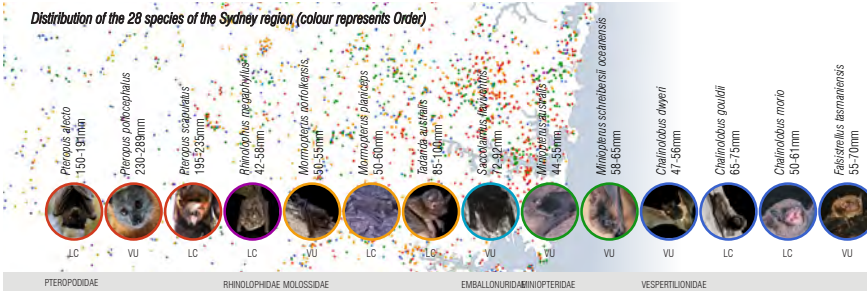
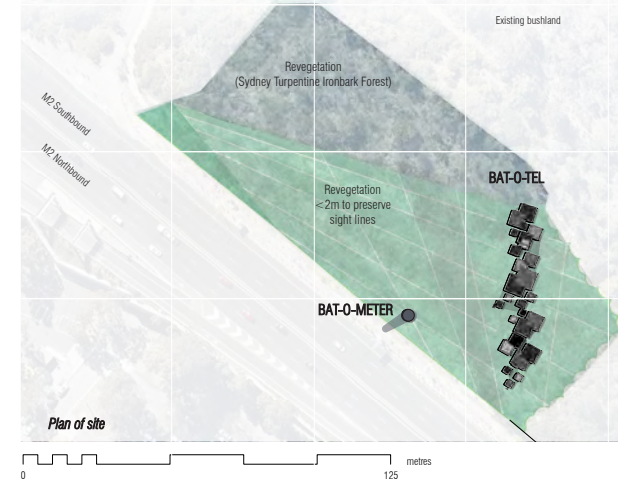
Bat-spotlight and signage
Projection of recognisable symbol by solar powered spotlight ...in this instance calling the city - not a superhero - to action in order to save species, not city



Bat-o-tel
Provides elevated nesting opportunities for all 28 species present in the Sydney region. Structures of 2.5m², 3m², 4m², 5m² and 6m². Colours are to indicate the nesting function by bat FAMILY (as represented by at base of page in species documentation)

Illustration of typical apertures and materials for *Bat-o-tel*

Apertures are @12-15mm, 16-20mm, 15-25mm and 25-35mm dependent upon species.



NEIGHBOURHOOD/PARK SCALE | Landscape Architecture: accommodating some of the 99.99% (non-charismatic fauna)
Bat Hotel in Sydney (Transurban competition, 2015)

(Kilbane & Hanson 2015)

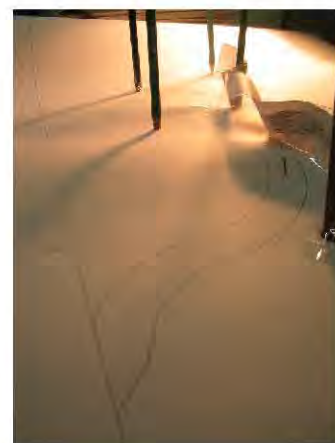


Swarbrick Discovery Forest and Sculpture Walk

Approx 10km North of Walpole, Western Australia



- > 7 Artworks
- > 5 Artists
- > 32m Interpretive Wall
- > Design Development



Walpole Wilderness Area Discovery Centre



Swarbrick Discovery Forest and Sculpture Walk

Approx 10km North of Walpole, Western Australia

- > 7 Artworks
- > 5 Artists
- > 32m Interpretive Wall

> Images from opening day, 26th November, 2006



Swarbrick Discovery Forest and Sculpture Walk

Approx 10km North of Walpole, Western Australia

- > 7 Artworks
- > 5 Artists
- > 32m Interpretive Wall
- > Images of Artworks



NEIGHBOURHOOD/PARK SCALE | Landscape Architects/Novel Ecosystems: The Sydney Olympic Park Brick Pit Ring Durbach Block (1999) | Green and Golden Bell Frog (*Litorea aurea*)

<http://www.landezine.com/index.php/2012/01/the-brick-pit-ring-by-durbach-block-architects/>

Hardy-Clements | 2/10/16

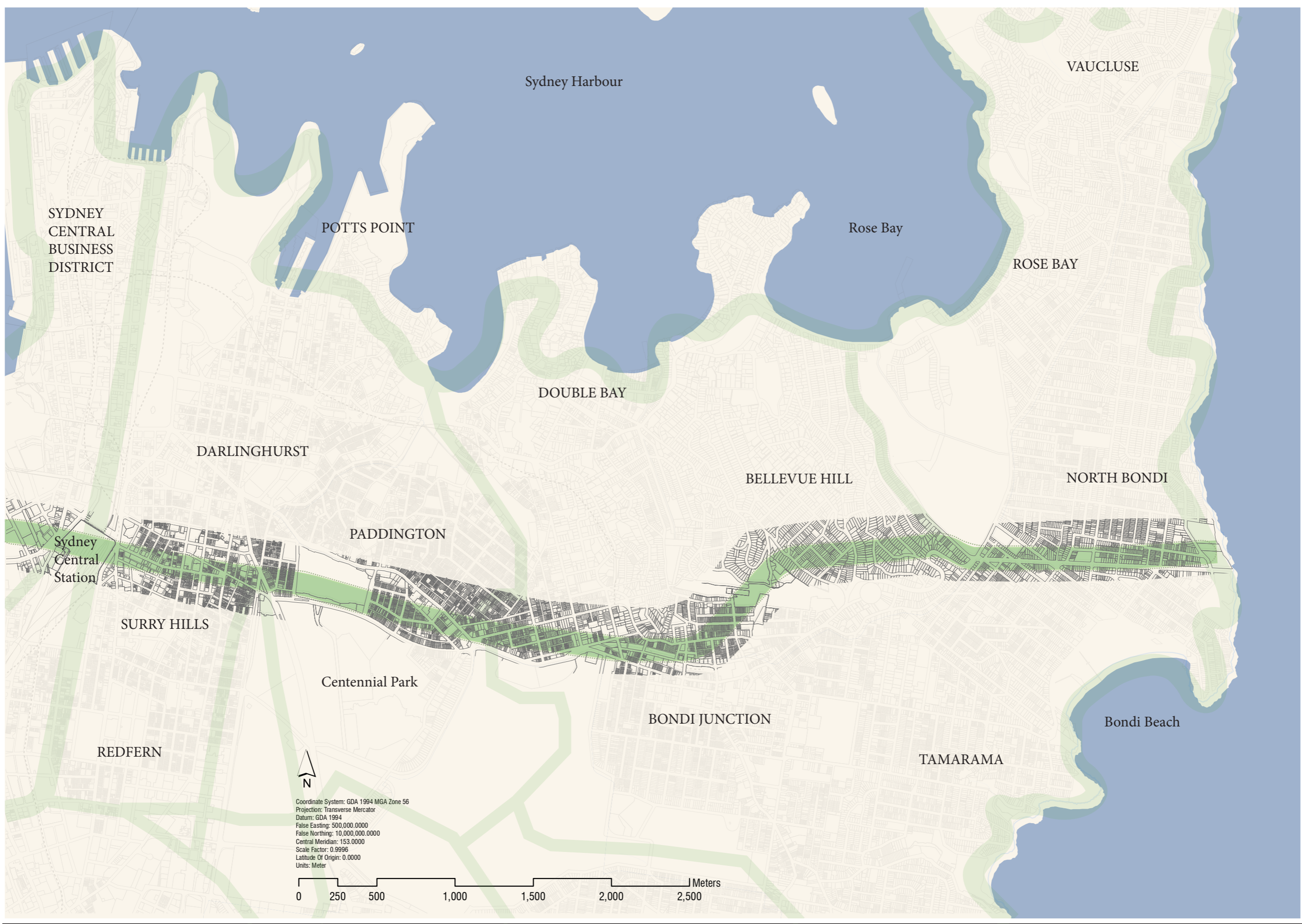


REGIONAL SCALE | Sydney Green Grid
Office of Government Architect

Schaffer (2015)



REGIONAL SCALE - LOCAL SCALE | Sydney Green Grid *Office of Government Architect* | Detailed design investigation



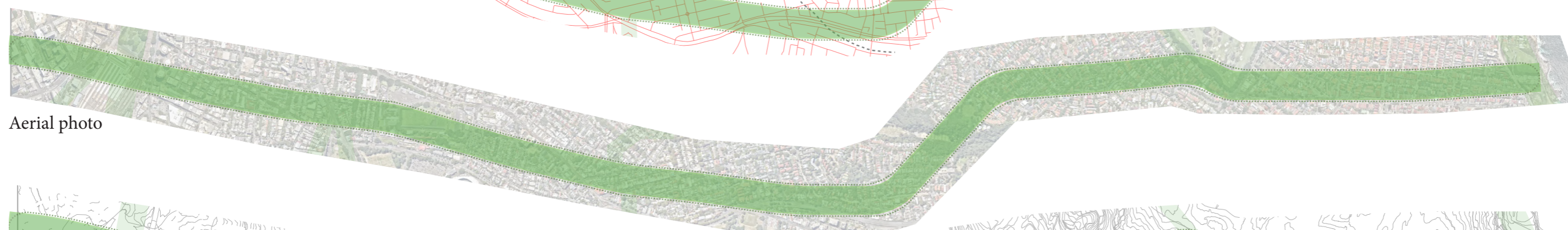
Focus upon the Mountains to the Sea linkage component between CBD and Pacific Ocean.



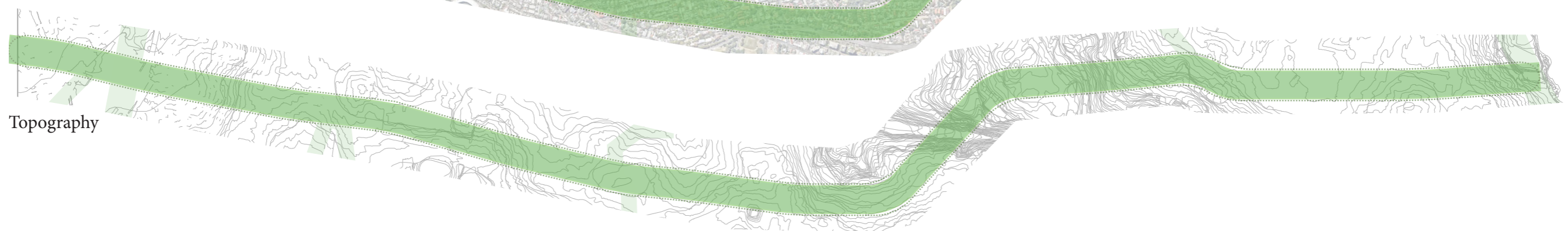
Cadastr



Grey
Infrastructure



Aerial photo



Topography



Coordinate System: GDA 1994 MGA Zone 56
Projection: Transverse Mercator
Datum: GDA 1994
False Easting: 500,000.0000
False Northing: 10,000,000.0000
Central Meridian: 153.0000
Scale Factor: 0.9996
Latitude Of Origin: 0.0000
Units: Meter



Central Station



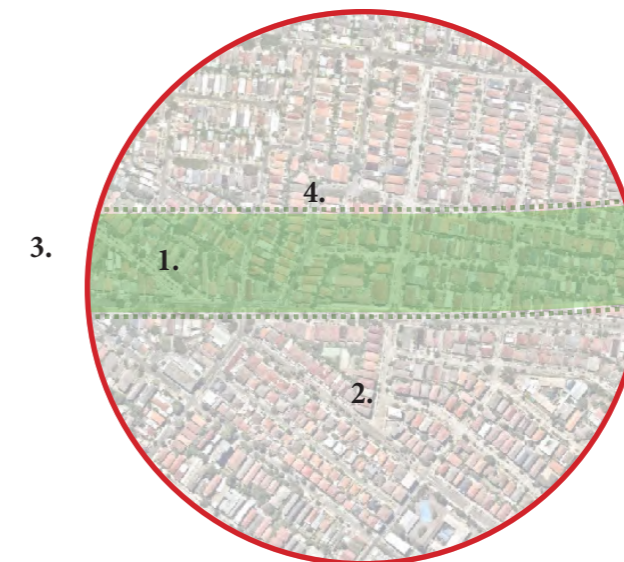
1. Conflict apparent with existing high density built form (4-20 storeys).
2. Conflict between linkage and major rail transport interchange.
3. Further design detailing could ensure better connectivity to adjacent parklands.
4. Green Grid provides a bandwidth within which a suite of design scenarios could be explored (from increasing tree cover, to removal of whole city blocks for parklands).

Bondi Junction

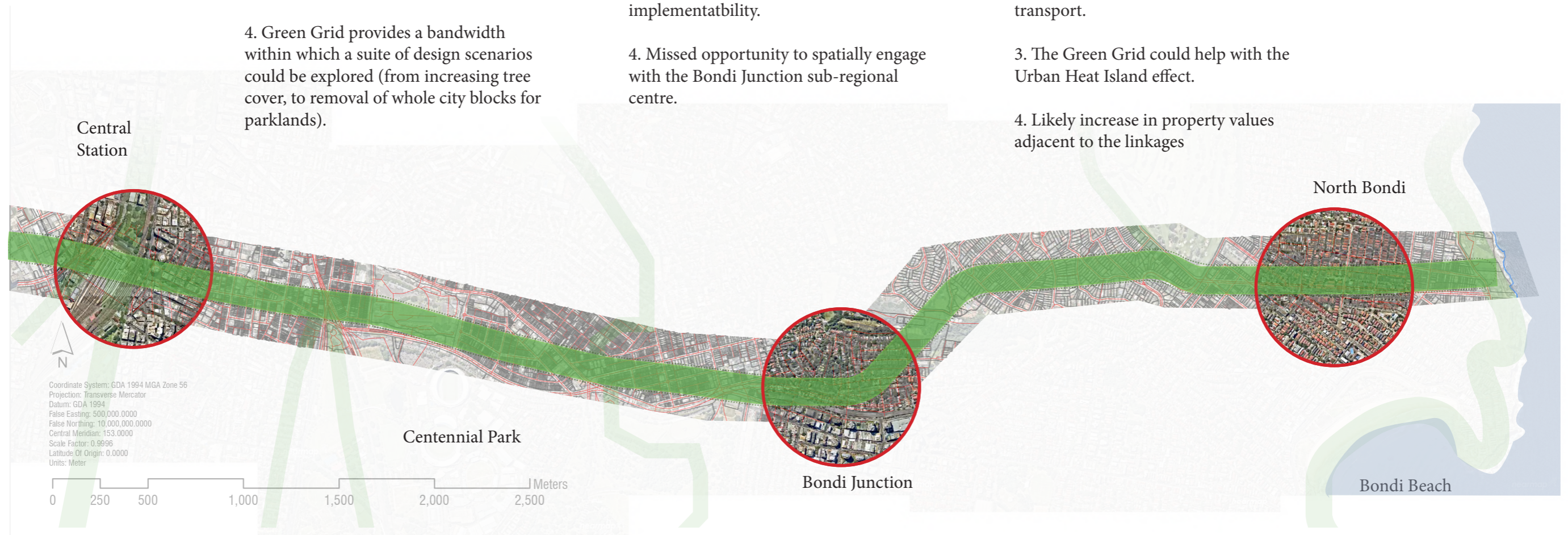


1. Green Grid and major roadway conflict.
2. Green Grid finds potential typological candidates within the existing vegetation cover of the suburban land-use
3. Green Grid conflicts with suburban residential form, questioning implementability.
4. Missed opportunity to spatially engage with the Bondi Junction sub-regional centre.

North Bondi



1. Alignment to the existing land subdivision cadastre, means that future implementation could be made simpler.
2. Relief from the monotony of the suburban land-use and could provide valuable open space for recreation, ecological connectivity and active transport.
3. The Green Grid could help with the Urban Heat Island effect.
4. Likely increase in property values adjacent to the linkages



Central Station precinct



Central Station precinct



Central Station precinct

Detailed study area





Motor vehicle dominated public space

Narrow streets

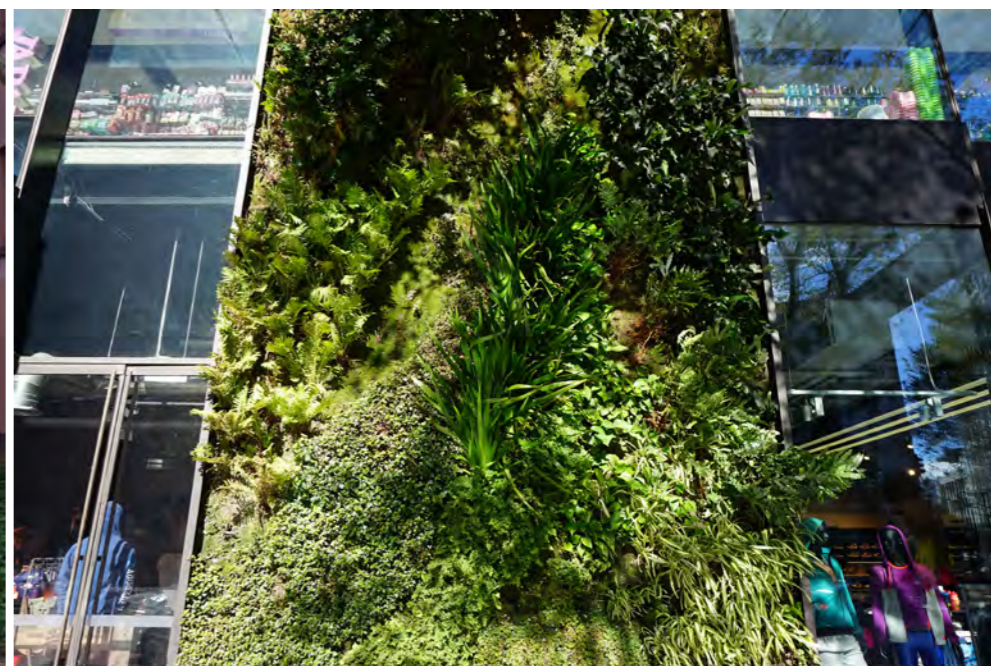
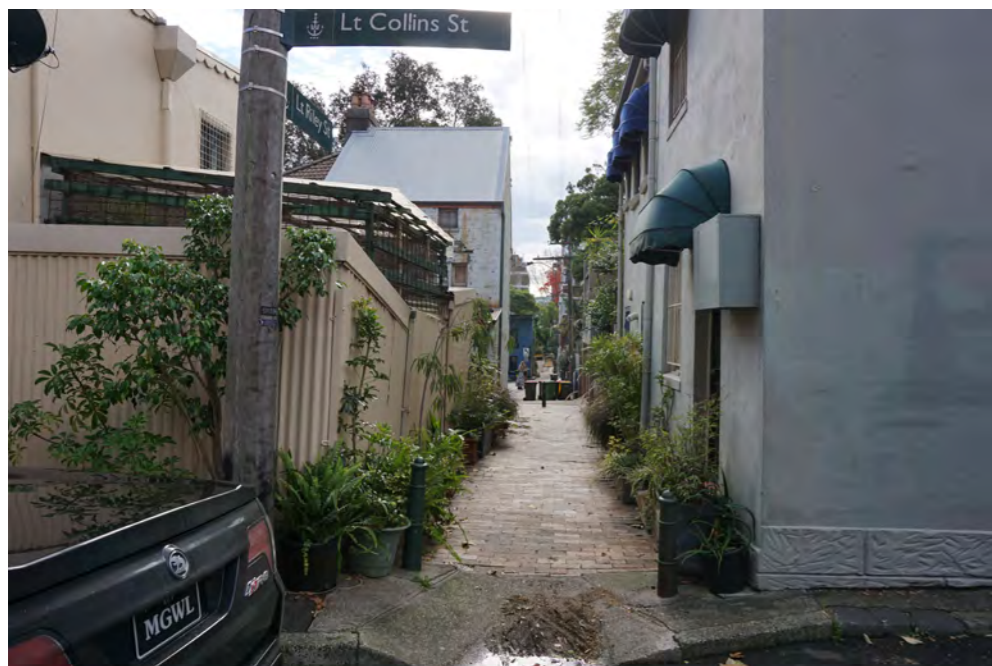
Terrace houses

Study area character (01) - neighbourhood built fabric



Replacement of existing built form

Study area - locations of redevelopment potential



Small scale - laneways and private gardens

Medium - pocket parks and plazas

Built - Green walls (and green roofs)

Possible future based upon current patterns of use and neighbourhood trends





Central Station detailed design scenario exploration



Scenario One - 'Business-As-Usual'

Disconnected pocket parks and minimal tree planting.

Benefits include increase of shade over certain locations where actions occur, slight increase in urban amenity, but negligible impacts to active recreation, ecological connectivity and property values.

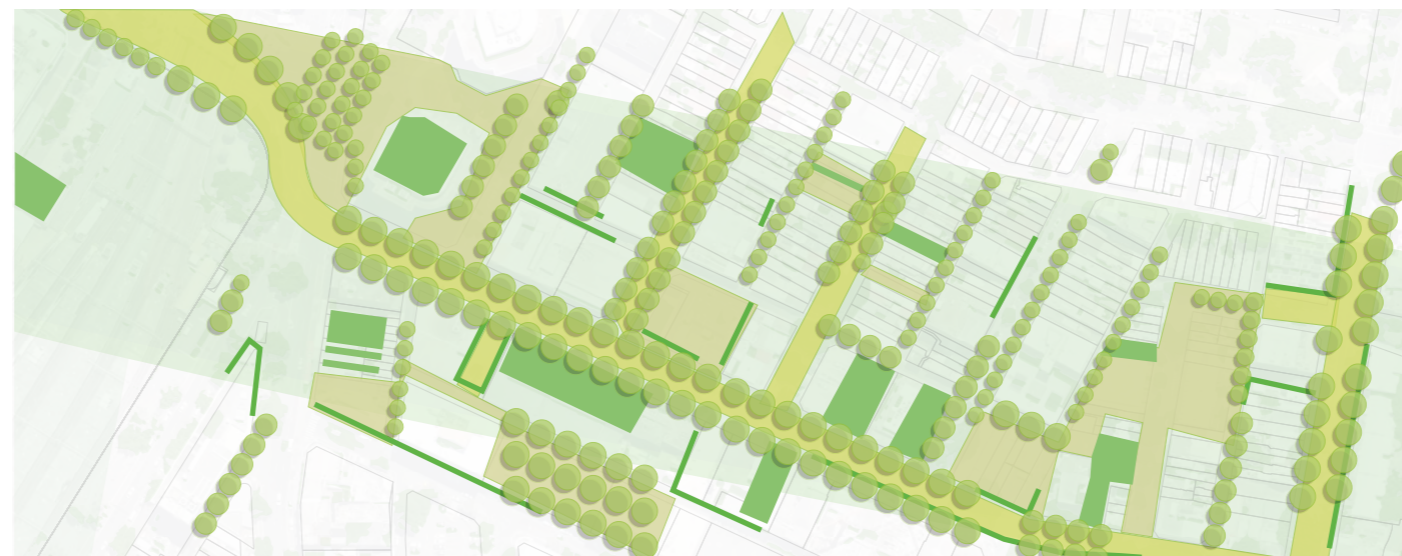
- Key**
-  Street trees and urban planting
 -  Pocket parks and Greenways
 -  Green Roofs and green walls
 -  Rewilding of urban landscape



Scenario Two - 'Classic Greenway'

Creation of single or several greenways for active and non-vehicular transport, planting throughout the greenway bandwidth, more pocket parks and the installation of green roofs and green walls.

Benefits include increase of shade across the urban area, increase in urban amenity, increase in active recreation, ecological connectivity and augmented property values.



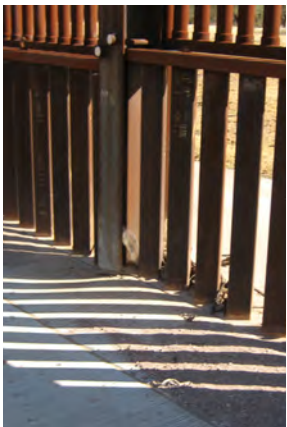
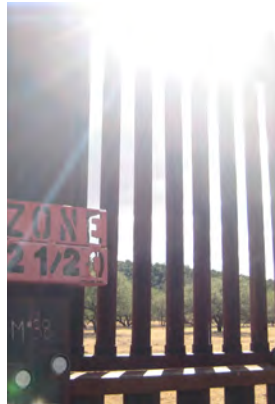
Scenario Three - 'True Green Infrastructure'

Incremental replacement of entire streets and city blocks when building or infrastructural lifespan has expired.

Large-scale disruption which arguably would be implemented over 20-50 years. Benefits include mitigation of Urban Heat Island effect, treatment of all storm and waste waters, potential for urban agriculture, increase in amenity, recreation, ecological connectivity.



Site photos: existing site conditions



REGIONAL SCALE | Complex problems Border/Fauna MLA studio,
Nogales, Arizona/Mexico

Kilbane et al. (2015)



REGIONAL SCALE | Complex problems Border/Fauna MLA studio,
Nogales, Arizona/Mexico

<https://oneway2day.files.wordpress.com/2016/06/trump-build-that-wall.jpg>



Before & After Wolves

Restoring wolves to Yellowstone after a 70-year absence as a top predator—especially of elk—set off a cascade of changes that is restoring the park's habitat as well.

YELLOWSTONE WITHOUT WOLVES 1926-1995

ELK overtook the stream side willows, cottonwoods, and shrubs that prevent erosion. Birds lost nesting space. Habitat for fish and other aquatic species declined as waters became broader and shallower and, without shade from streamside vegetation, warmer.

ASPEN trees in Yellowstone's northern valleys, where elk winter, were seldom able to reach full height. Elk ate nearly all the new sprouts.

COYOTE numbers climbed. Though they often kill elk calves, they prey mainly on small mammals like ground squirrels and voles, reducing the food available for foxes, badgers, and raptors.

ART BY FERNANDO G. SERRATO, NO STAFF; AMANDA MOORE, NO STAFF; SCOTTIE BISHOP, L. BISHOP AND WILLIAM J. RIPPLE, OREGON STATE UNIVERSITY; DOUGLAS W. SMITH, YELLOWSTONE NATIONAL PARK



YELLOWSTONE WITH WOLVES 1995-PRESENT

ELK population has been halved. Severe winters early in the reintroduction and drought contributed to the decline. A healthy fear of wolves also keeps elk from lingering at streamside, where it can be harder to escape attack.

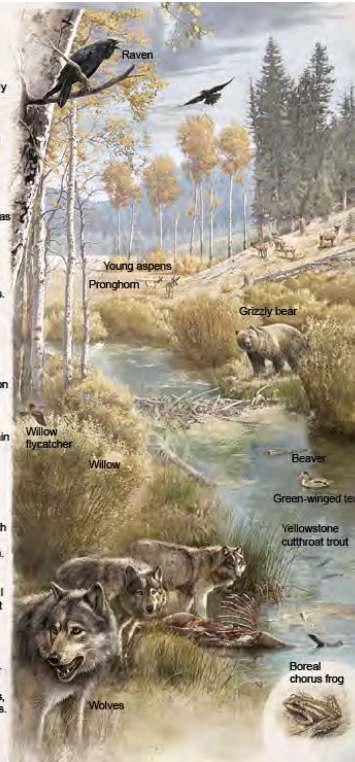
ASPENS The number of new sprouts eaten by elk has dropped dramatically. New groves in some areas now reach 10 to 15 feet tall.

COYOTES Wolf predation has reduced their numbers. Fewer coyote attacks may be a factor in the resurgence of the park's pronghorn.

WILLOWS, cottonwoods, and other riparian vegetation have begun to stabilize stream banks, helping restore natural water flow. Overhanging branches again shade the water and welcome birds.

BEAVER colonies in north Yellowstone have risen from one to 12, now that some stream banks are lush with vegetation, especially willows (a key beaver food). Beaver dams create ponds and marshes, supporting fish, amphibians, birds, small mammals, and a rich insect population to feed them.

CARRION Wolves don't cover their kill, so they've boosted the food supply for scavengers, notably bald and golden eagles, coyotes, ravens, magpies, and bears.

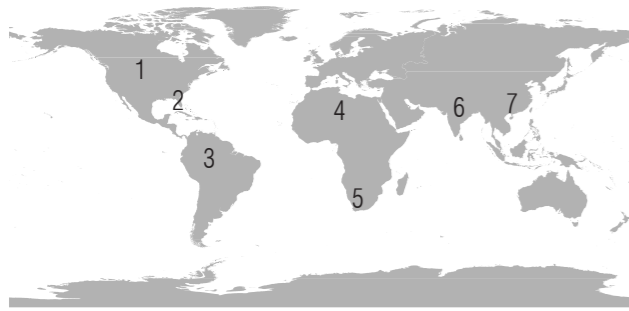


REGIONAL SCALE | Ecosystem redesign? Wolf reintroduction in Yellowstone (Ripple & Beschta 2012)

http://media.npr.org/assets/img/2016/04/18/02_yellowstone_00_america_wild_idea_ngm_mm8326_141006_54947_007-9d27e21504515bd1fe03df43aa9df9c25bc7e98c-s900-c85.jpg

<http://wolfawarenessinc.org.s176301.gridserver.com/wp-content/uploads/2016/05/Yellowstone-image.jpg>

http://media.tumblr.com/feefad20cb791eee7be8ce5997c382dc/tumblr_inline_njziwyVQBC1sd219r.png



Examples of some notable North, Central American, African and Asian continental or regional scale connectivity conservation projects

1. The Wildlands Project (Wildlands Network 2010b) also known as the Yellowstone to Yukon Initiative (Yellowstone to Yukon Conservation Initiative 2010)

Extent: Canada, USA, Mexico, Guatemala, El Salvador, Panama, Costa Rica, Nicaragua

2. Florida Greenways (Hector 2000; Hauserman 1995)

Extent: Florida, USA

3. Sendero del Jaguar (Panthera 2015)

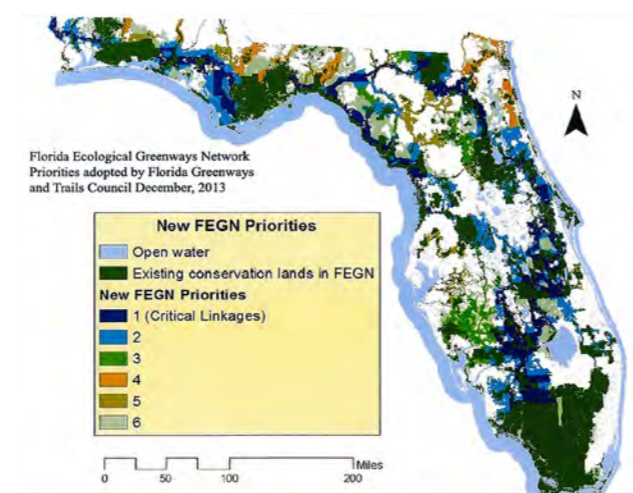
Extent: Argentina, Belize, Bolivia, Brazil, Colombia, Costa Rica, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, and Venezuela.

4. Great Green Wall project (Food Agriculture Organization of the United Nations 2014)

Extent: Burkina Faso, Djibouti, Eritrea, Ethiopia, Mali, Mauritania, Niger, Nigeria, Senegal, Sudan and Chad



http://www.twp.org/sites/default/files/map_wildways%20_72ppi.jpg



Hector 2000; Hauserman 1995



Panthera 2015, http://www.frontiersin.org/files/Articles/171704/fevo-03-00148-HTML-r2/image_m/fevo-03-00148-g001.jpg

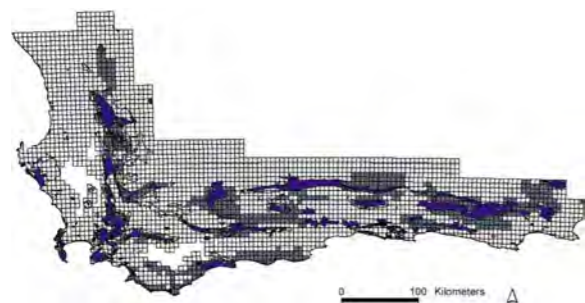


Food Agriculture Organization of the United Nations 2014, Afrique Avenir 2011

CONTINENTAL SCALE | *Examples of connectivity conservation*

5. Cape Floristic (Cowling et al. 2003)

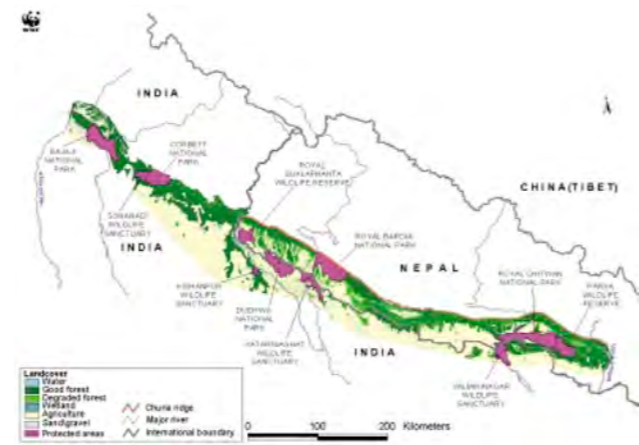
Extent: South Africa



Cowling et al. 2003 Fig. 4

6. The Terai Arc Landscape (WWF 2004)

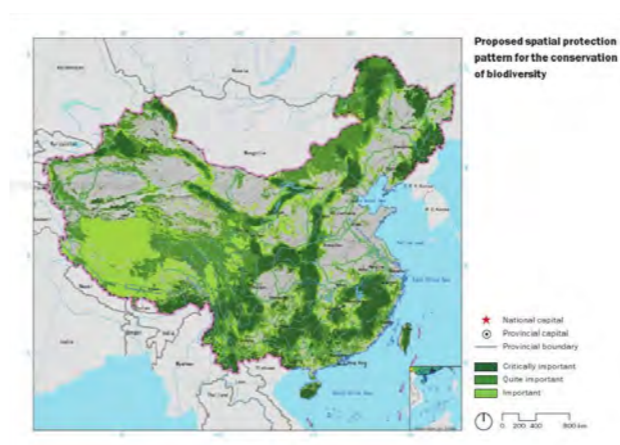
Extent: India, Nepal



assets.panda.org/downloads/tal_strategic_plan_1.pdf

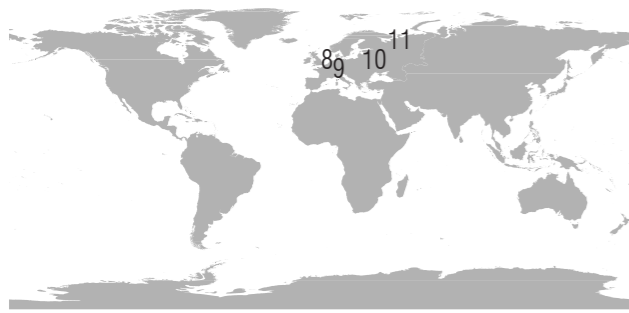
7. The Chinese National Ecological Security Pattern Plan (Yu 2014)

Extent: China



Yu 2014

CONTINENTAL SCALE | *Examples of connectivity conservation*



Examples of some notable European continental or regional scale connectivity conservation projects

8. Netherlands Ecological Network (NEN) (Jongman & Bogers 2008)

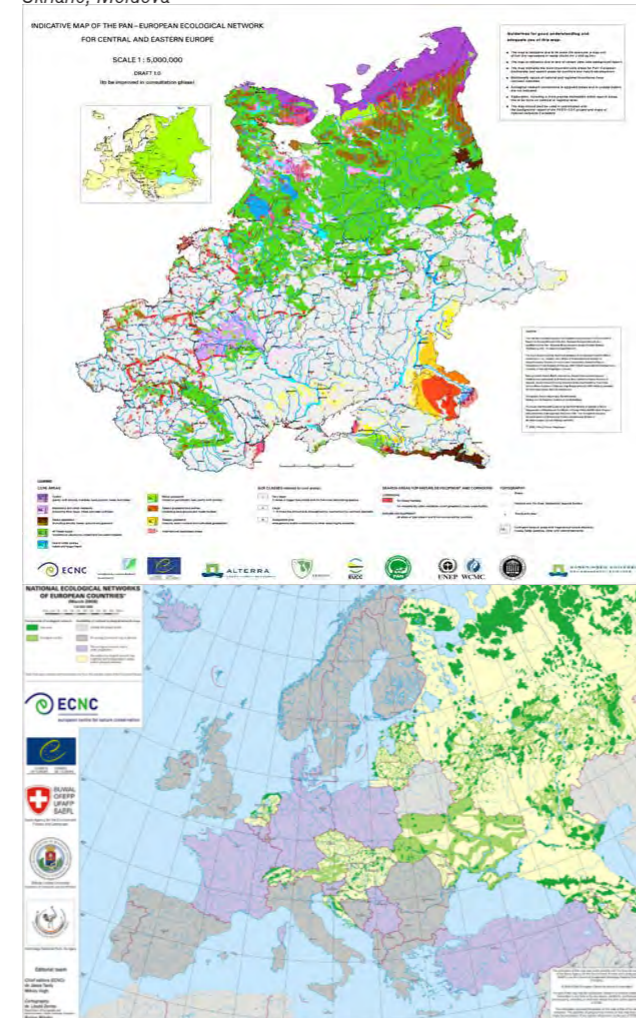
Extent: Netherlands



Jongman & Bogers 2008

9. Pan European Ecological Network (PEEN) (Jongman et al. 2011)

Extent: Russia, Lithuania, Hungary, Austria, Switzerland, Netherlands, Romania, Bulgaria, Slovakia, Czech Republic, Finland, Estonia, Latvia, Ukraine, Moldova



<http://www.ecologicalnetworks.eu/images/Maps/overview%20map%20of%20national%20ecological%20network%20maps.JPG>

10. European Greenbelt (Jakubowski 2013; Zmelik, Schindler & Wrbka 2011)

Extent: Russia, Finland, Germany, Czech Republic, Austria, Slovakia, Hungary, Slovenia, Croatia, Romania, Bosnia and Herzegovina, Macedonia, Bulgaria, Macedonia, Albania, Greece



<http://www.ecologicalnetworks.eu/images/Maps/GreenBelt.jpg>

11. Estonia Ecological Network (Külvik, Suškevičs & Kreisman 2008; Remm et al. 2004)

Extent: Estonia

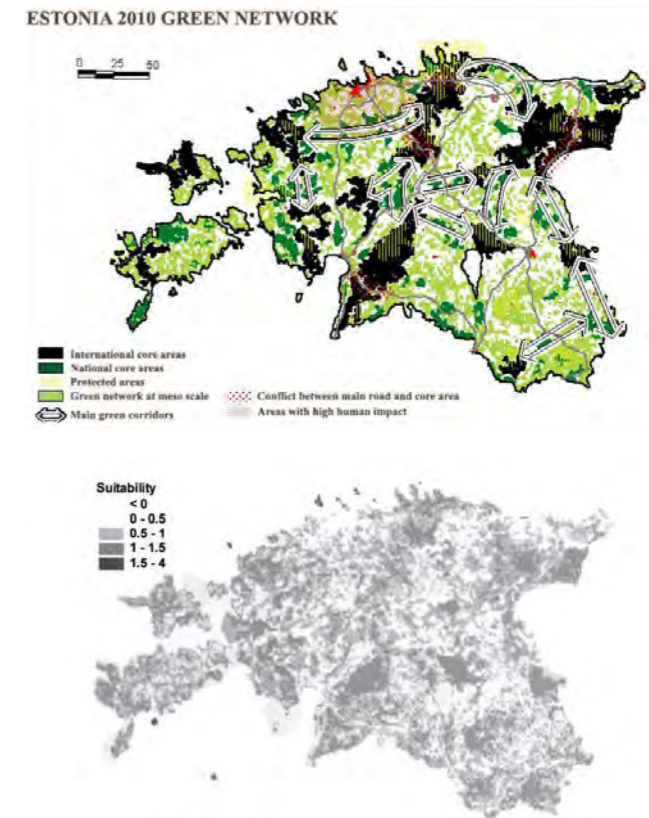
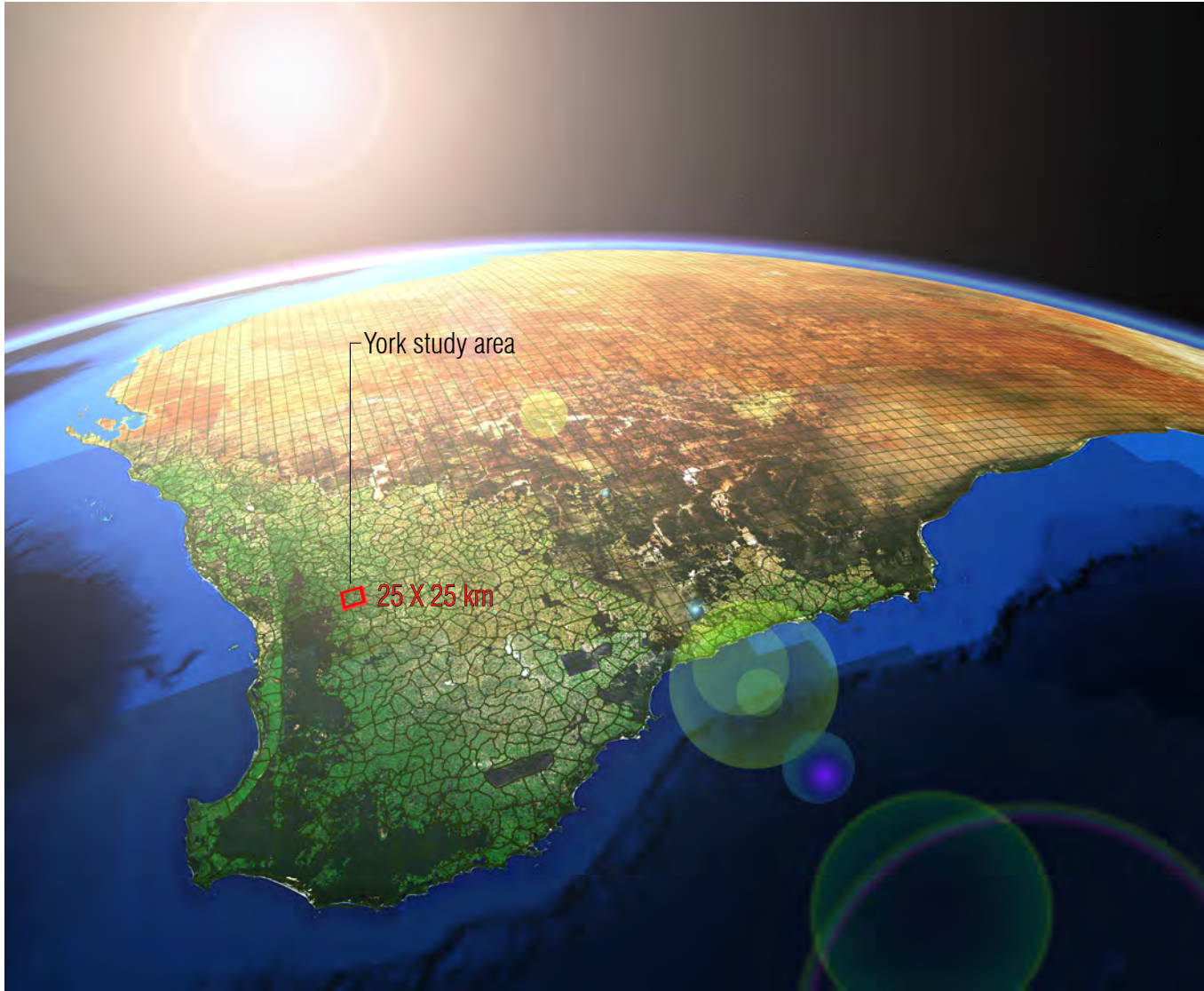


FIGURE 3-5. Compound suitability for the ecological network in Estonia. (Külvik, Suškevičs & Kreisman 2008), <http://www.ecologicalnetworks.eu/images/Maps/GreenBelt.jpg>

CONTINENTAL SCALE | *Examples of connectivity conservation*

Across a range of scales...



CONTINENTAL SCALE | Supersized Landscape Architecture?
PhD research: *The National Green Network for Australia*

Kilbane (2016) Fig. 1

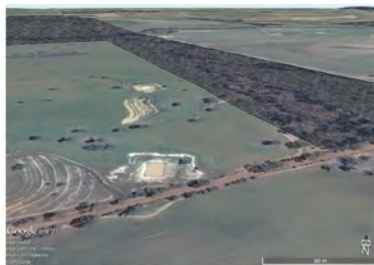
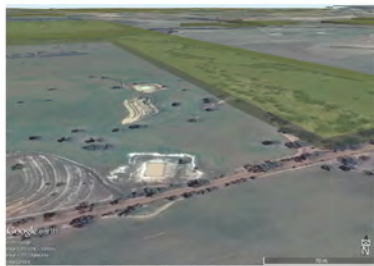
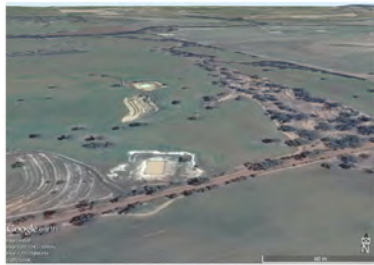
View 1

Latitude: 31°57'38.86"S
Longitude: 116°49'14.65"E
Range: 3238m
Heading: 18.000000°
Tilt: 70.000000°



View 2

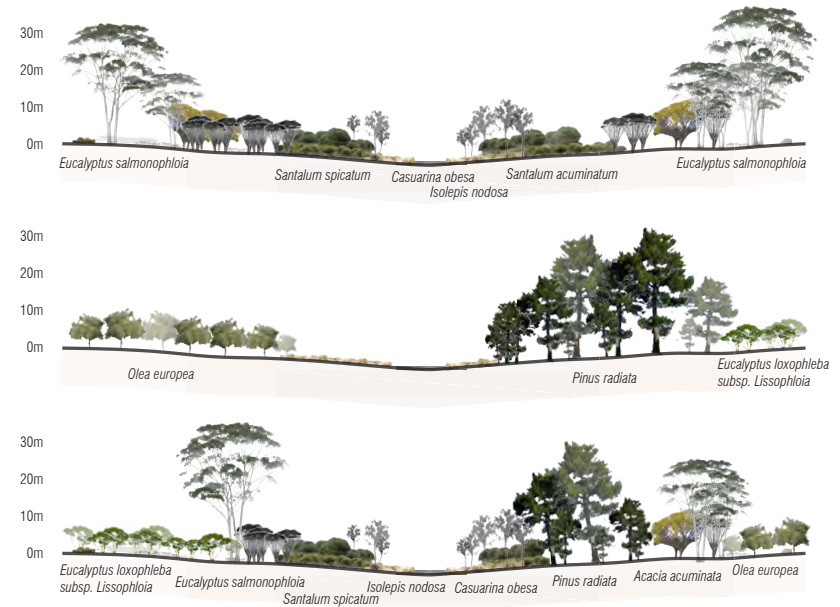
Latitude: 31°56'29.93"S
Longitude: 116°53'29.92"E
Range: 422m
Heading: -3.000000°
Tilt: 69.000000°



Before

Design overlay

Illustration



'Ecological' scenario:

Ecological restoration with high species diversity and a primary goal of recreating ecological habitat and connectivity where absent to SERI benchmarks

'Cultural' scenario:

Low species diversity
Goal to mitigate salinity through cash cropping agroforestry of trees and carbon sequestration/oil mallee

'Hybrid' scenario:

Restoration approach that balances elements of both ecological and cultural approaches

CONTINENTAL SCALE | Supersized Landscape Architecture?

PhD research: *The National Green Network for Australia*

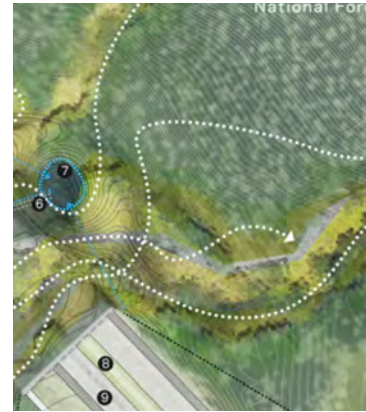
1. Novel ecosystem theory: should we worry?

- *Isn't everything now 'novel'?*
- *What sort of 'nature by design' do we want?*
- *Are we deceiving ourselves... is the potential for us to engineer ecosystems possible?*
- *What about ecological restoration?*



2. Heuristic principles versus design: do rules of thumb exist and do we need design?

- *Do we already know what is required but lack agency/are powerless? (i.e. political, economic, cultural forces...)*
- *How can the design disciplines (such as Landscape Architecture) and science intersect?*
- *Are rules of thumb a way to respond to the urgency of action required/precautionary principle?*
- *How can we act with Indigenous knowledge of Country and landscape management?*



3. What tools and methods could help us to (really) practice notions of stewardship?

- *How do we engage people/community in this process?*
- *What collaborative and integrated design processes exist?*
- *Can we really effect deeper change and not just superficial or cosmetic outcomes?*



Question THREE

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simon.kilbane@uts.edu.au