
MISSING
SINCE THE 1990'S
THE SUBURBAN BACKYARD
PLEASE COME HOME



ALL IS FORGIVEN

The impact of
urbanisation on
biodiversity in climate
changing times



Birding the 'burbs

Supervisors:

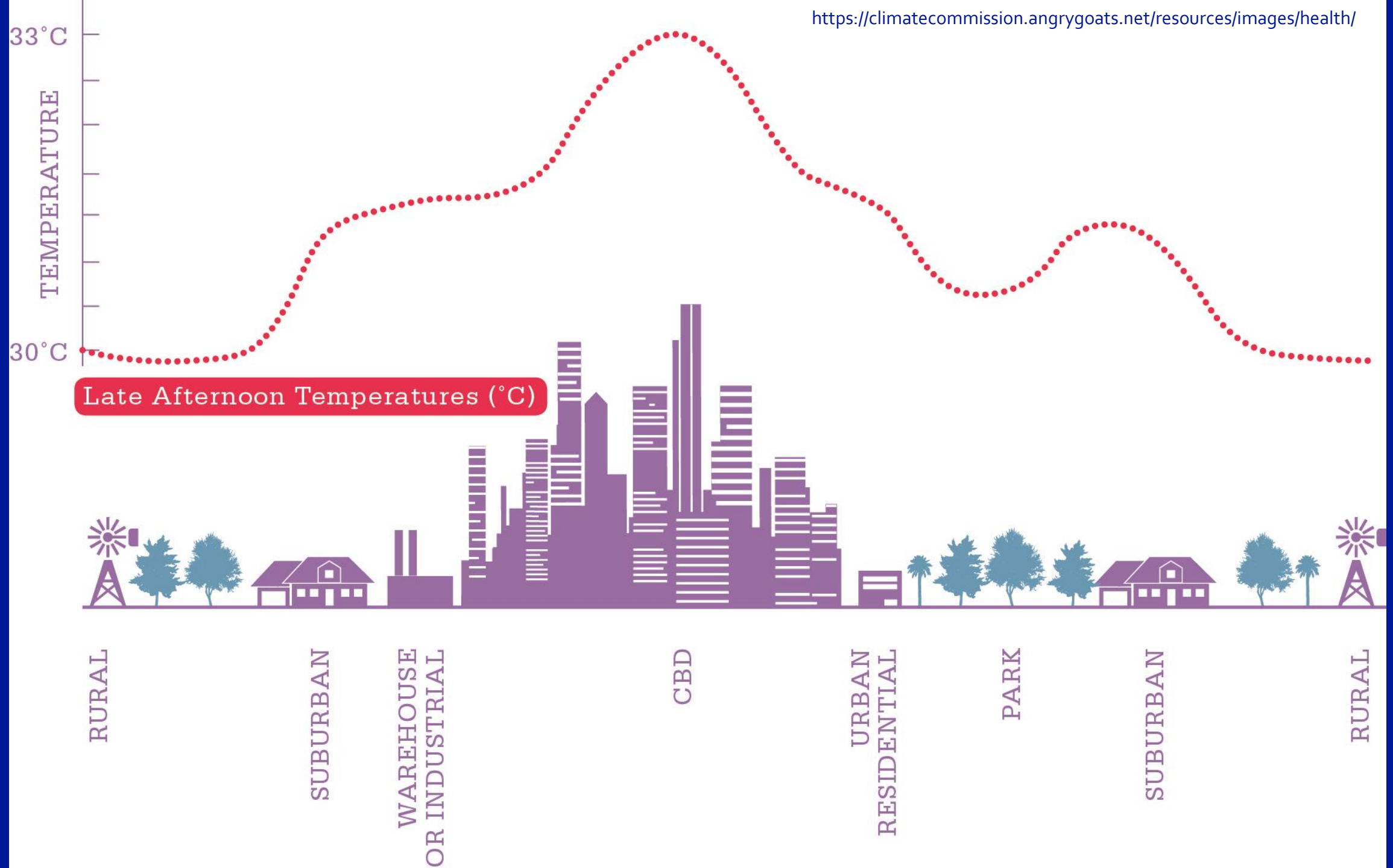
- Ass Prof David Bruce
- Dr Philip Roetman
- Prof John Boland









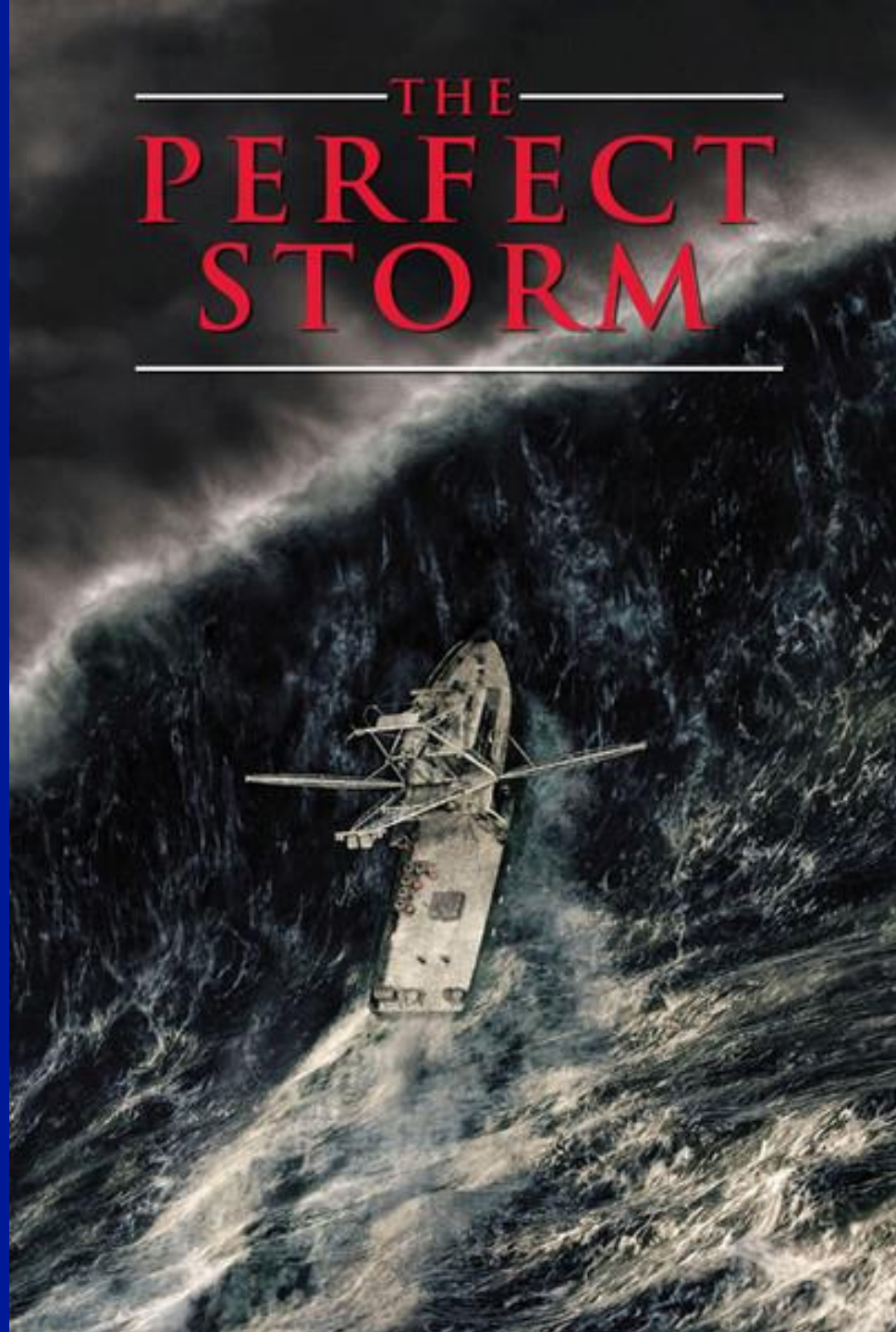








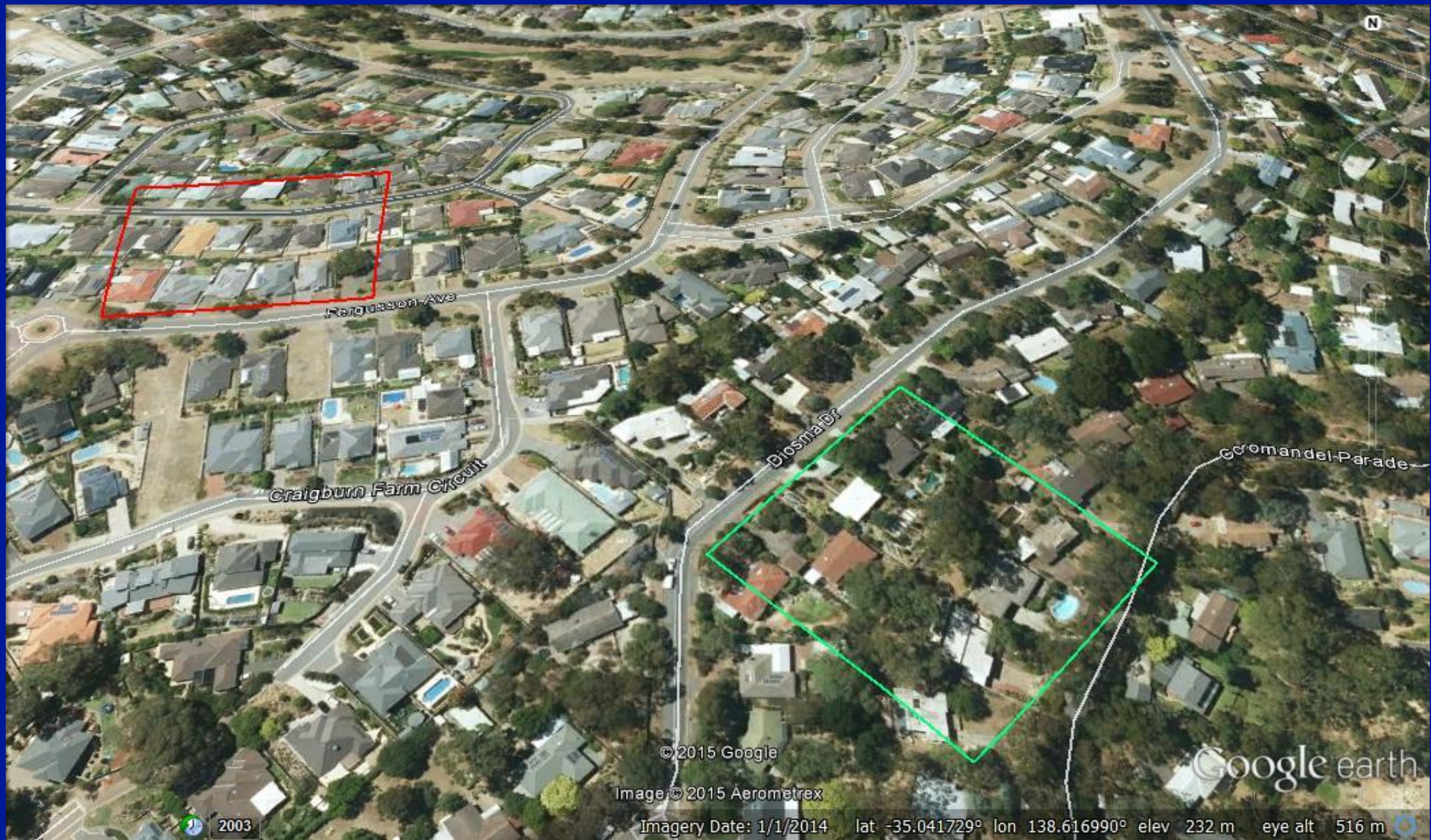
THE
PERFECT
STORM



*With Eyes
Wide Shut*

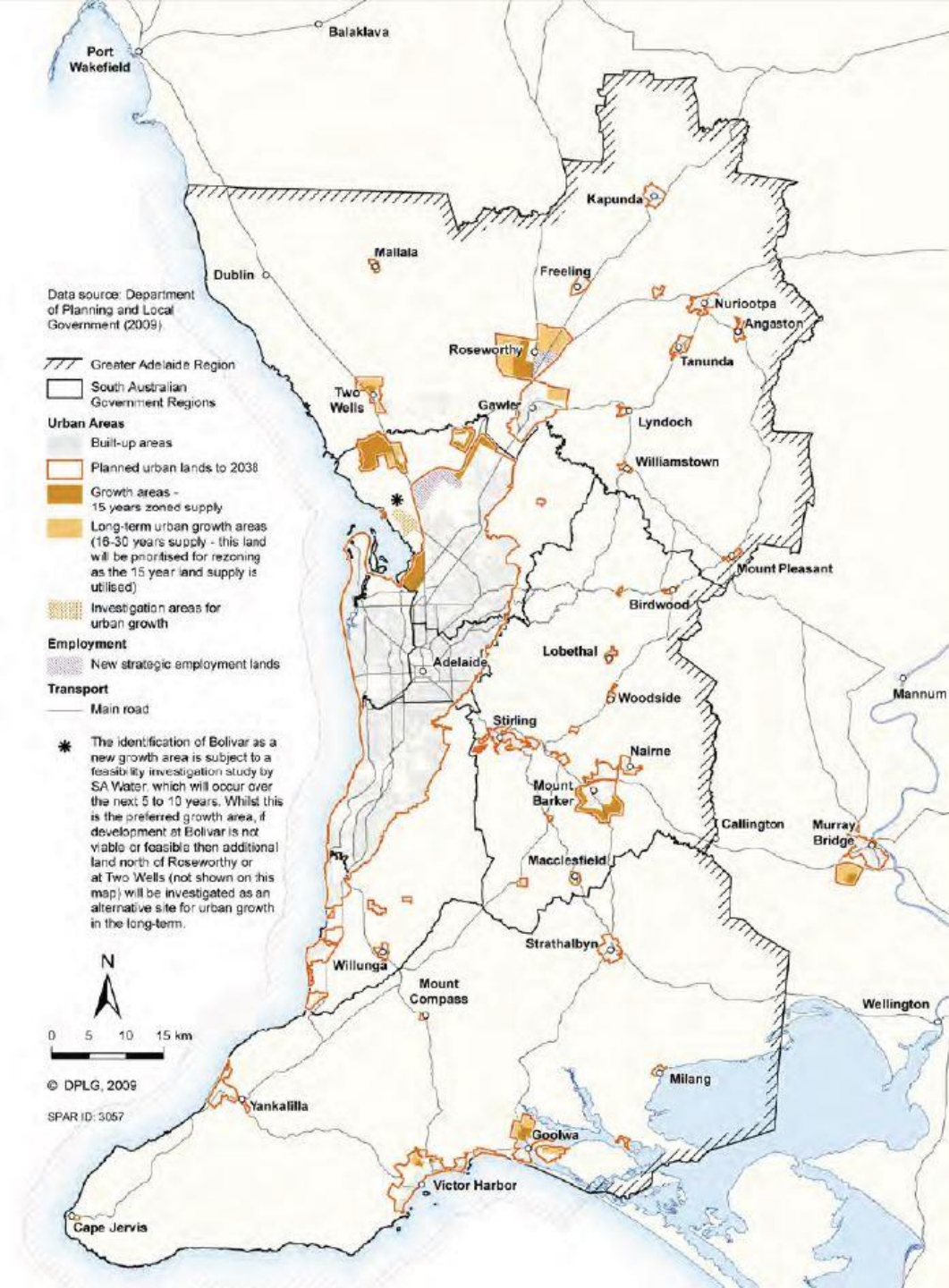
The impact of urbanisation
on biodiversity in climate
changing times





Target growth areas

- 30-year urban growth region
- 14 local government regions
- Approx. 9 000 km²
- Diverse land cover & land types
- Over next 30 years:
 - Extra 560 000 people
 - Extra 258 000 dwellings
 - Consuming 14 600 Ha of new land



What's the problem

- Urbanisation's negative impact on biodiversity
- Biodiversity is good
- How to optimise urbanisation for biodiversity
- People respond to biodiversity





Developing Adelaide with biodiversity

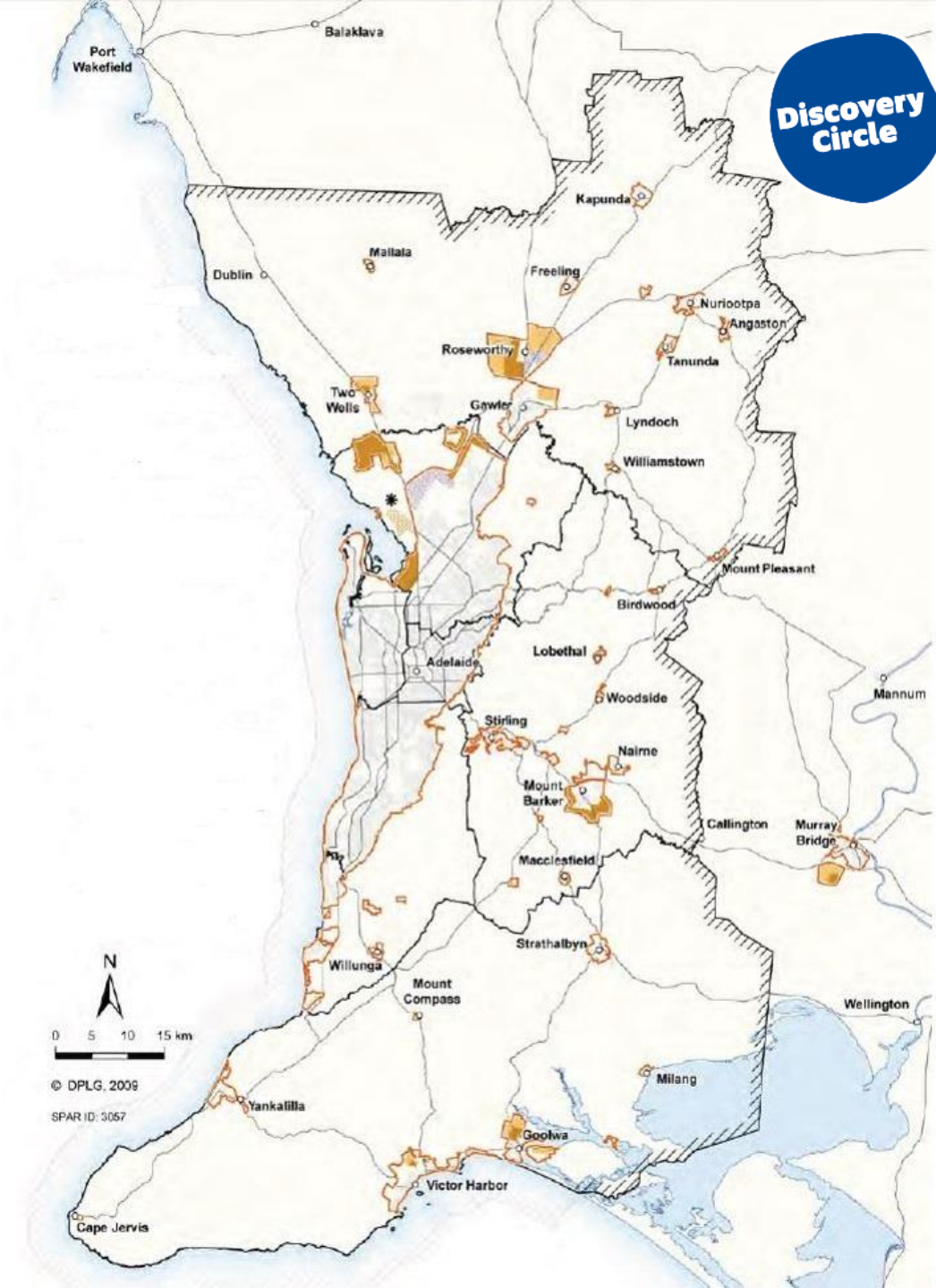
For Adelaide...

Why:

- ✓ To provide urban development that maximises biodiversity for people and nature

Which means... innovation for:

- ✓ Healthier communities
- ✓ A 'sense of place'
- ✓ Aesthetics
- ✓ Attractiveness to buyers
- ✓ Faster sales times for higher prices
- ✓ For climate adaption (reduce ongoing costs)



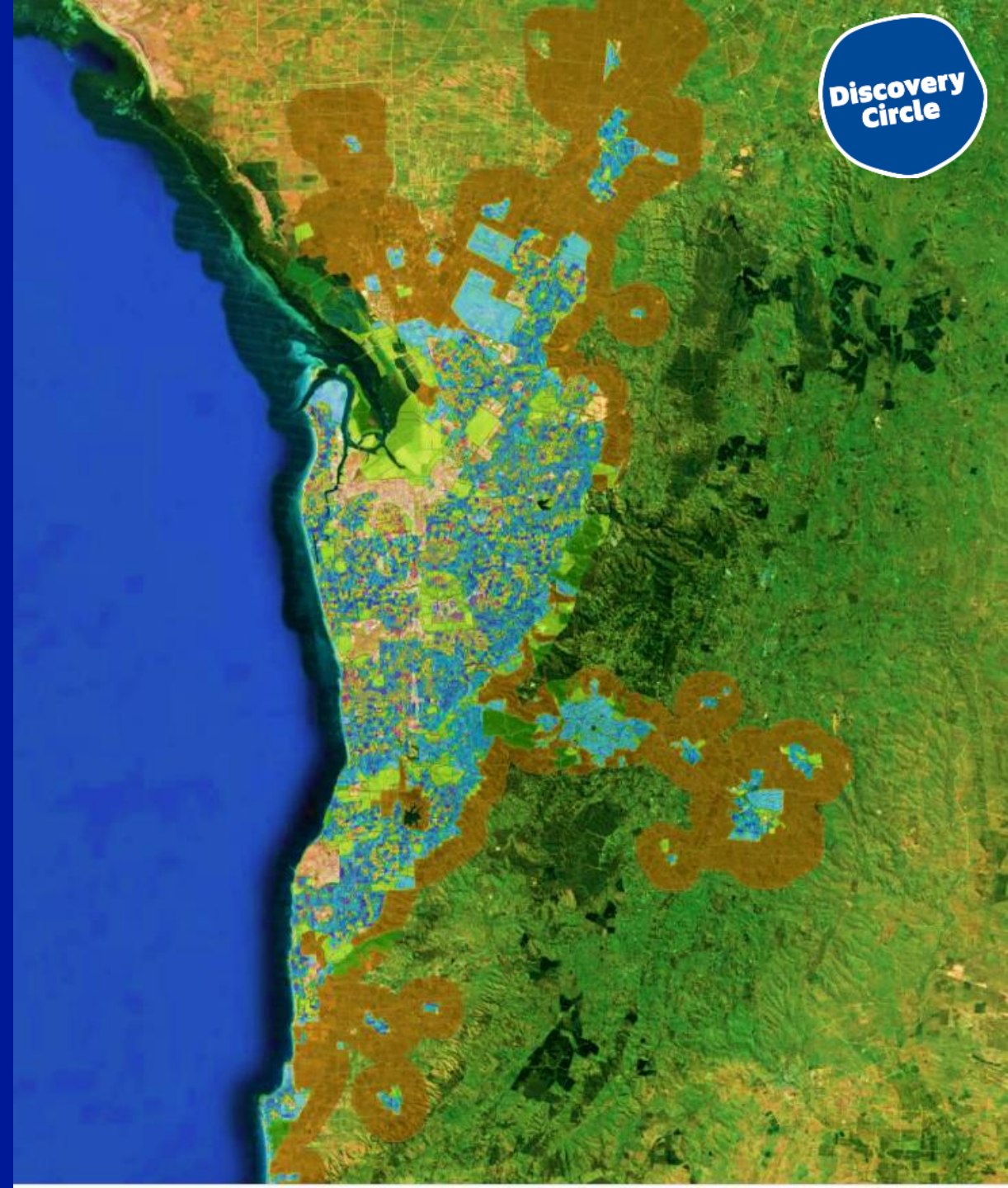
For Adelaide...

How:

- ✓ By understanding relationships between urban development and biodiversity

To develop:

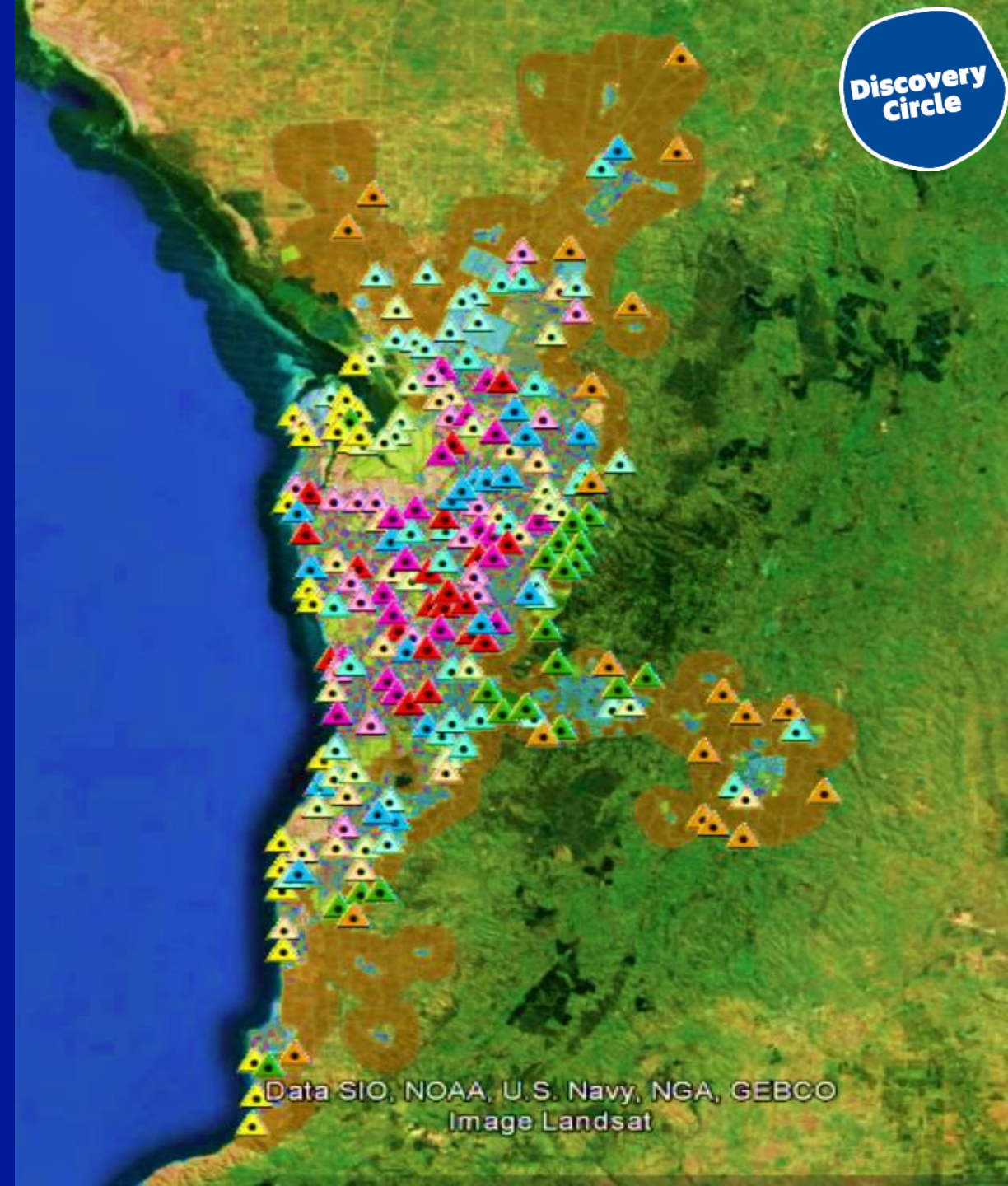
- ✓ **New tools**
Complimenting existing tools of planners and developers
- ✓ **Increased evidence base**
Maximising biodiversity AND meeting growth targets
- ✓ **Informing**
Providing options to help make decisions about space



For Adelaide...

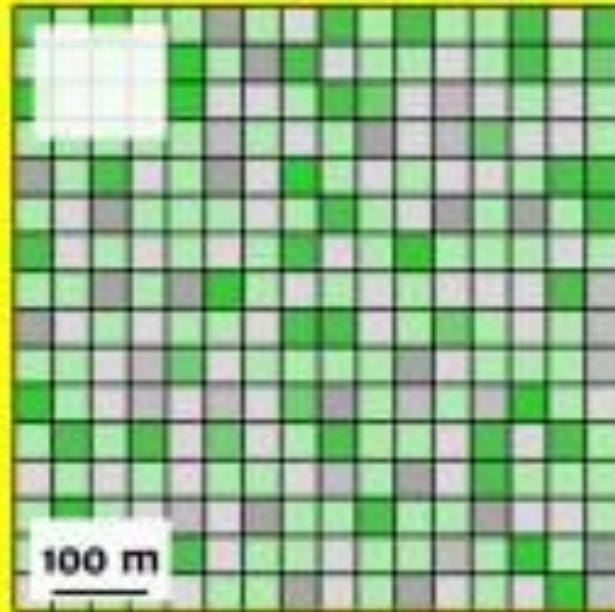
What:

- ✓ Analysing current situation (citizen science approach)
- ✓ Projections of future scenarios
 - ✓ Strategic: 30-year plan
 - ✓ Larger-scale developments
 - ✓ Down to precinct level
- ✓ Outcomes:
 - ✓ Tool to assess development
 - ✓ Informed options
 - ✓ Flexibility
 - ✓ Win-win for people and biodiversity

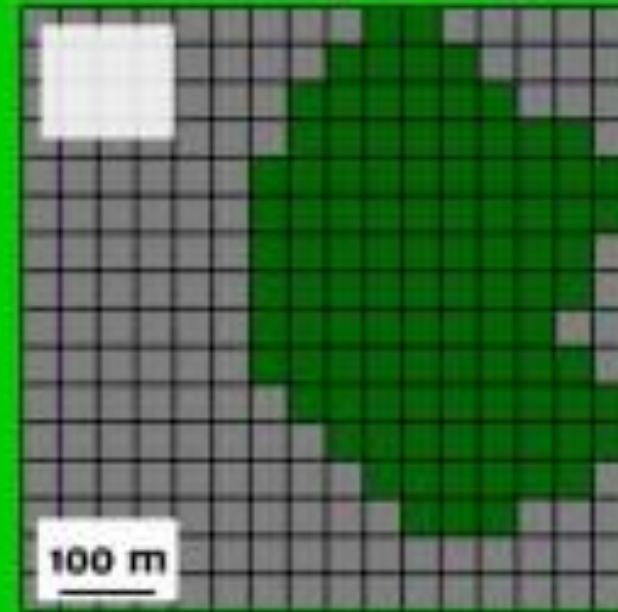




Land sharing



Land sparing



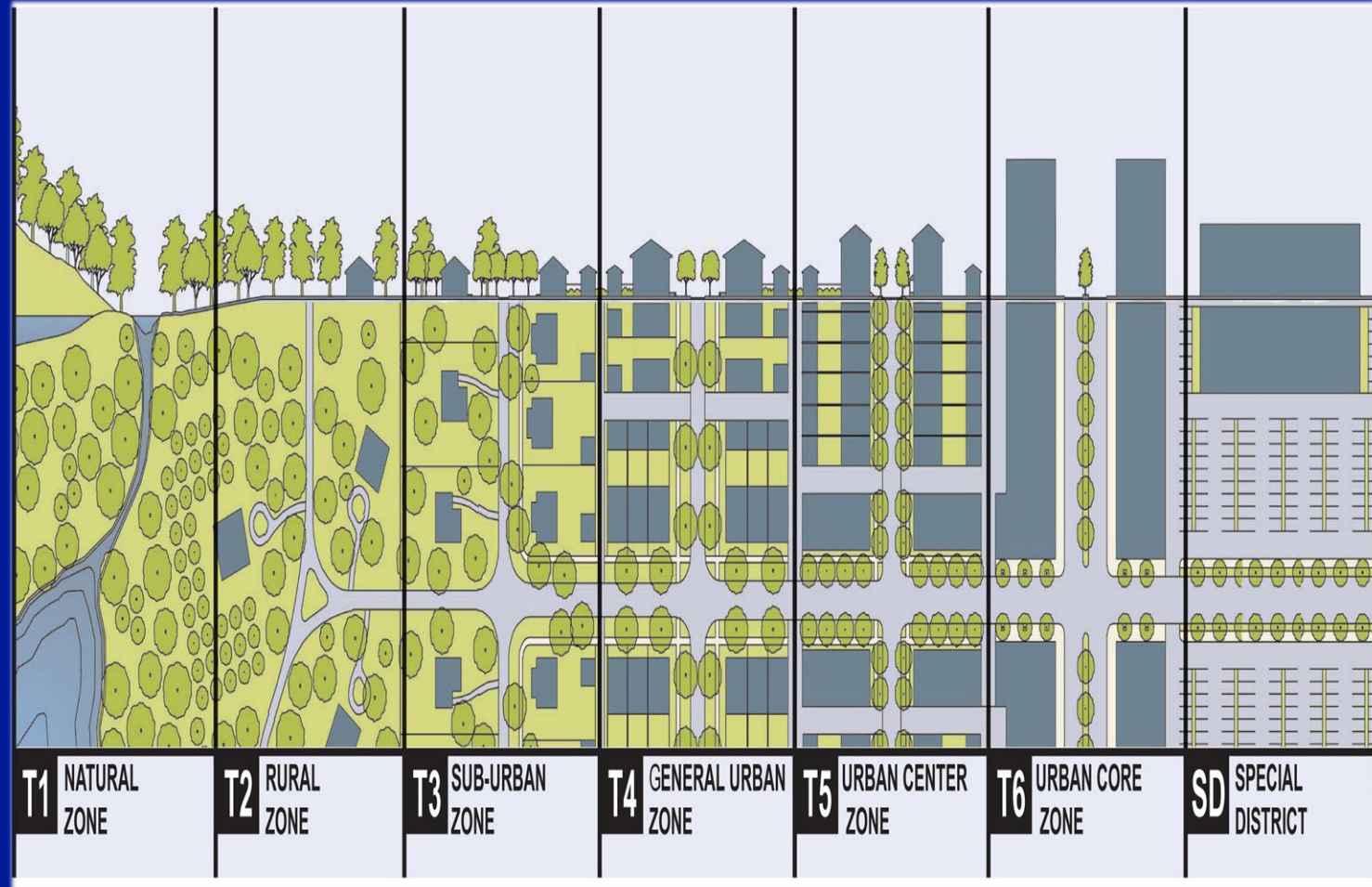
Typical changes along an urban-rural gradient

(moving out from the urban core)

Discovery
Circle

Typical physical changes:

- ↓ human population density
- ↓ pollution & heat-island effect
- ↓ disturbance
- ↓ imperviousness
- ↑ natural vegetation
- ↑ biodiversity



Building on previous research

Only in Brisbane

- × Coarse analysis
- × Not enough data
- × Specific to Brisbane only

Development types studied:

1. Sprawl – land sharing
2. Infill – land sparing

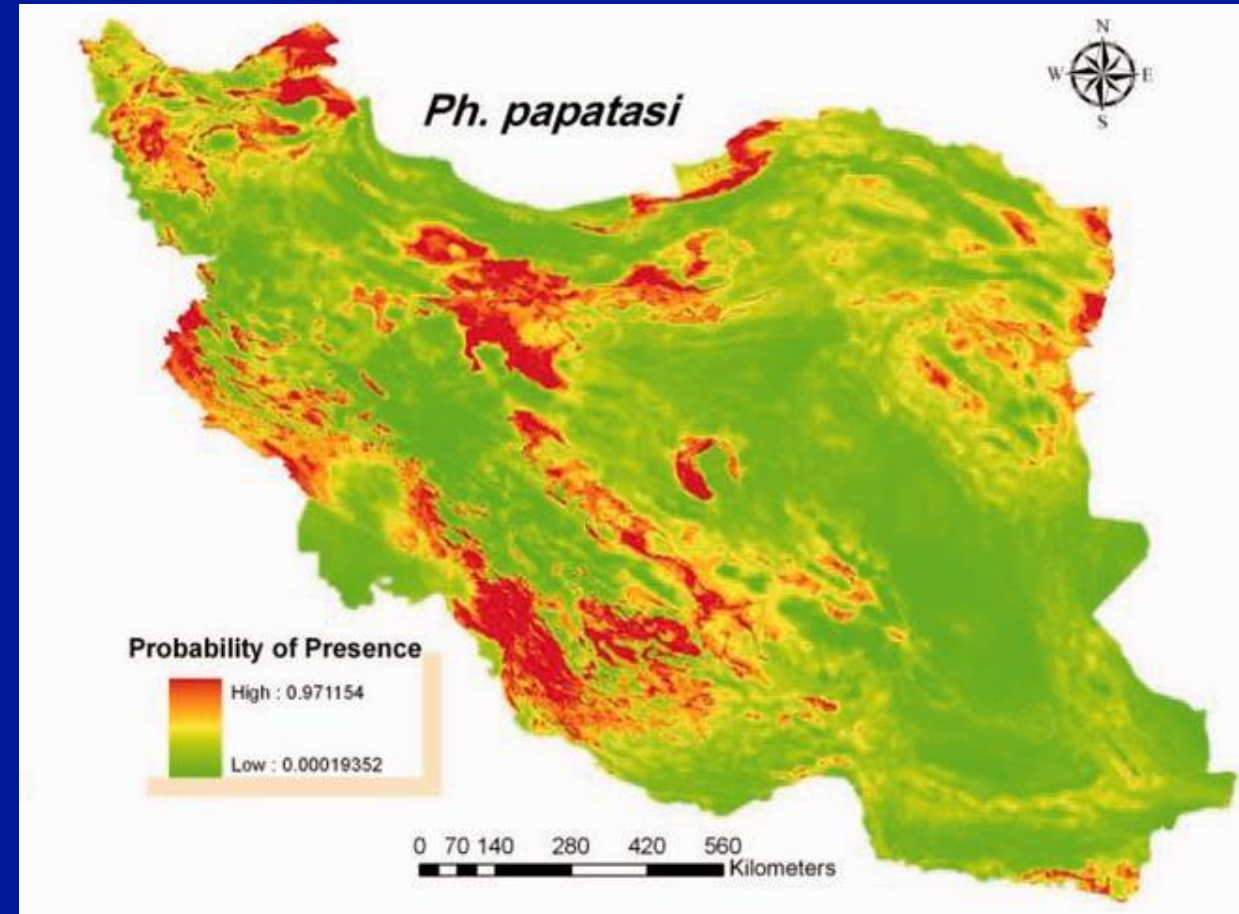
Found infill better than sprawl

- ✓ Caveat: If good green spaces left



Example analysis

- Based on 30 year projection
 - Extra 560 000 people
 - Extra 258 000 dwellings
 - Consuming 15 000 Ha of new land
- Current bird biodiversity to infer what's likely to happen in similar urban areas - MaxEnt
- Infer what's the best way to develop Adelaide – infill, sprawl, or something in between
- Not one solution across the region
- Other scenarios can also be tested (impacts of climate change)



Preliminary analysis - spread



61%



59%



51%



45%



36%

35%



Preliminary analysis - numbers



15%



13%



9%



8%



6%



5%

Preliminary analysis – least seen









Developing Adelaide with biodiversity

Birds as biodiversity indicators

Taxonomy is well known & relatively stable

Distribution, ecology and life history well understood

Are widespread, mobile and diverse

Birds tend to occur higher up in their food chains

Tend to be sensitive to environmental change (both anthropogenic and natural)

Distribution generally reflects that of many other wildlife groups

Easy to detect, making counts realistic and inexpensive to collect

Survey design & analysis methods are well developed

Long-term historical data available

Birds are iconic - they resonate with people and their lives





ADELAIDE

CAUTION

**MAGPIE-LARKS IN THIS AREA
MAY SWOOP
(FROM ABOVE OR BELOW)**

PROTECT YOURSELF BY;

- (1) BEING ALERT TO THEIR PRESENCE**
- (2) RAISING AN UMBRELLA / STICK / ARM
OVER YOUR HEAD**
- (3) WEARING A HAT / BIKE HELMET**
- (4) IF CYCLING, GET OFF BIKE & WALK**

**DO NOT;
THROW ANYTHING AT MAGPIE-LARK;
IT MAY ATTACK MORE VIGOROUSLY**

