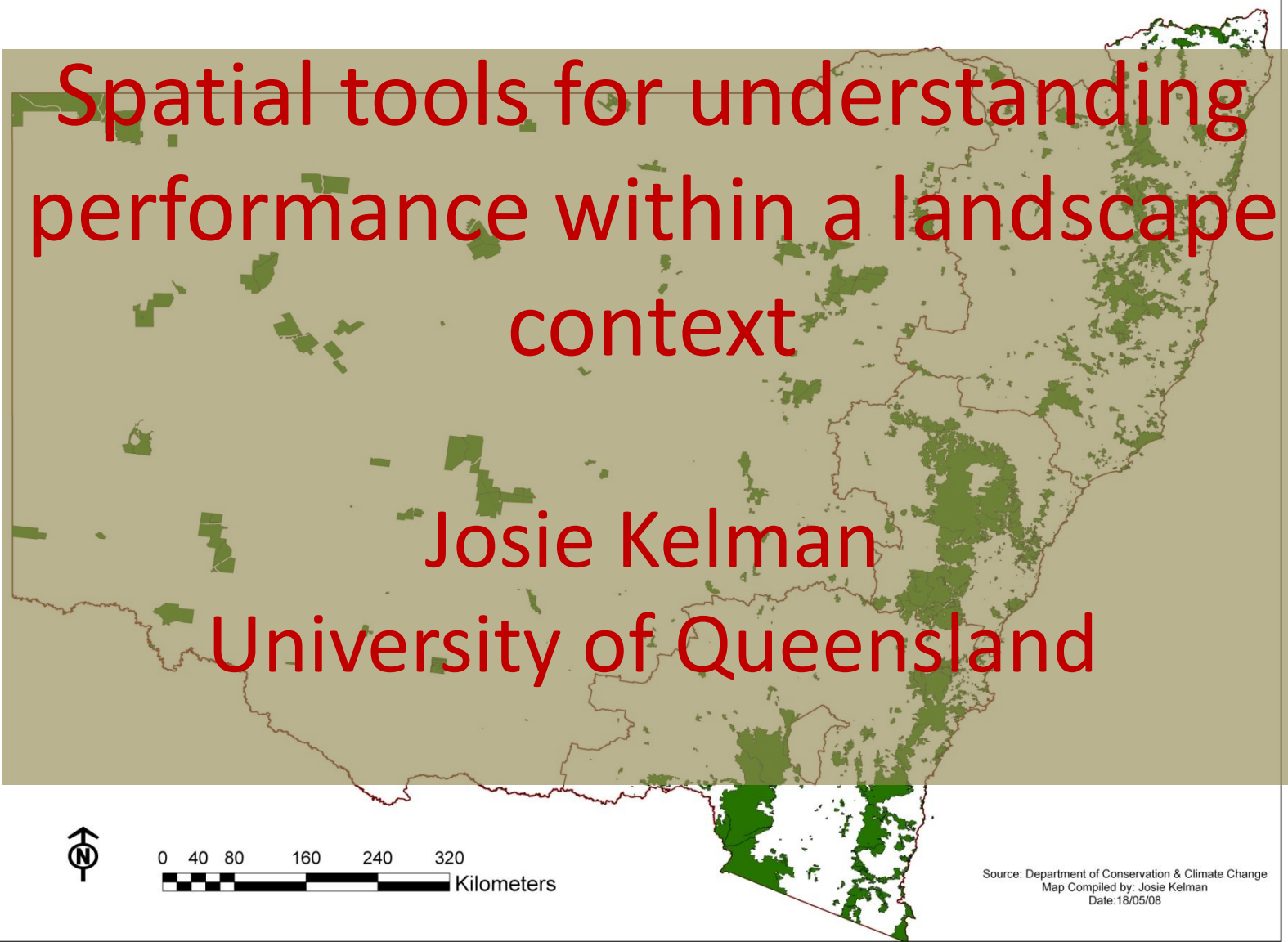


Legend

■ NSW Parks

New South Wales Park Estate



Spatial tools for understanding performance within a landscape context

Josie Kelman

University of Queensland

Source: Department of Conservation & Climate Change  
Map Compiled by: Josie Kelman  
Date: 18/05/08



**Australian Government**  
**Director of National Parks**



**NSW  
NATIONAL  
PARKS AND  
WILDLIFE  
SERVICE**

# Australian Research Council Linkage Grant

- 1. Factors that impact management effectiveness***
2. Improving the assessment systems
3. Adaptive management and social learning
4. Links to other agencies



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UQ



**Australian Government**  
**Department of the Environment and Water Resources**

# NSW State of the Parks

- What is driving management effectiveness in an Australian State's national parks and reserves?
- Large complex dataset
  - Issues: >750 parks, 136 variables, quantitative and qualitative
  - An explorative analysis technique – Numerical Taxonomy

# Analysis of NSW SOP data

- Numerical Taxonomy uses cluster analysis and a series of ordination techniques to allow an explorative analysis of the data
- Analysis was conducted on 2004, 2005 and 2007 SoP data
- Results: Two main types of influences – internal and external

# Key Drivers

- **Internal:** Staff time, Number of plans available to guide management, POM Status
- **External:** size, age, reserve design (Boundary to area relationships), neighbours (human population density), and visitor numbers (this could be considered internal but is also driven by travel distance and iconic status of parks hence this variables inclusion in external factors)

# Context for management

- The external drivers reflect the context for management
- So what is context?
  - derived by the analysis and by asking park managers (in workshops) typically includes:
    - size of the reserve, the age (i.e. is it a recent inclusion), park design, visitation, proximity to urban areas.
- How could you 'practically' account for context ?
  - I grouped parks statistically according to similarities using size, age, number of neighbours and visitors
    - Neighbours was used as a measure of urbanisation surrounding parks
    - Park design is considered as an additional layer to reduce complexity in potential combinations

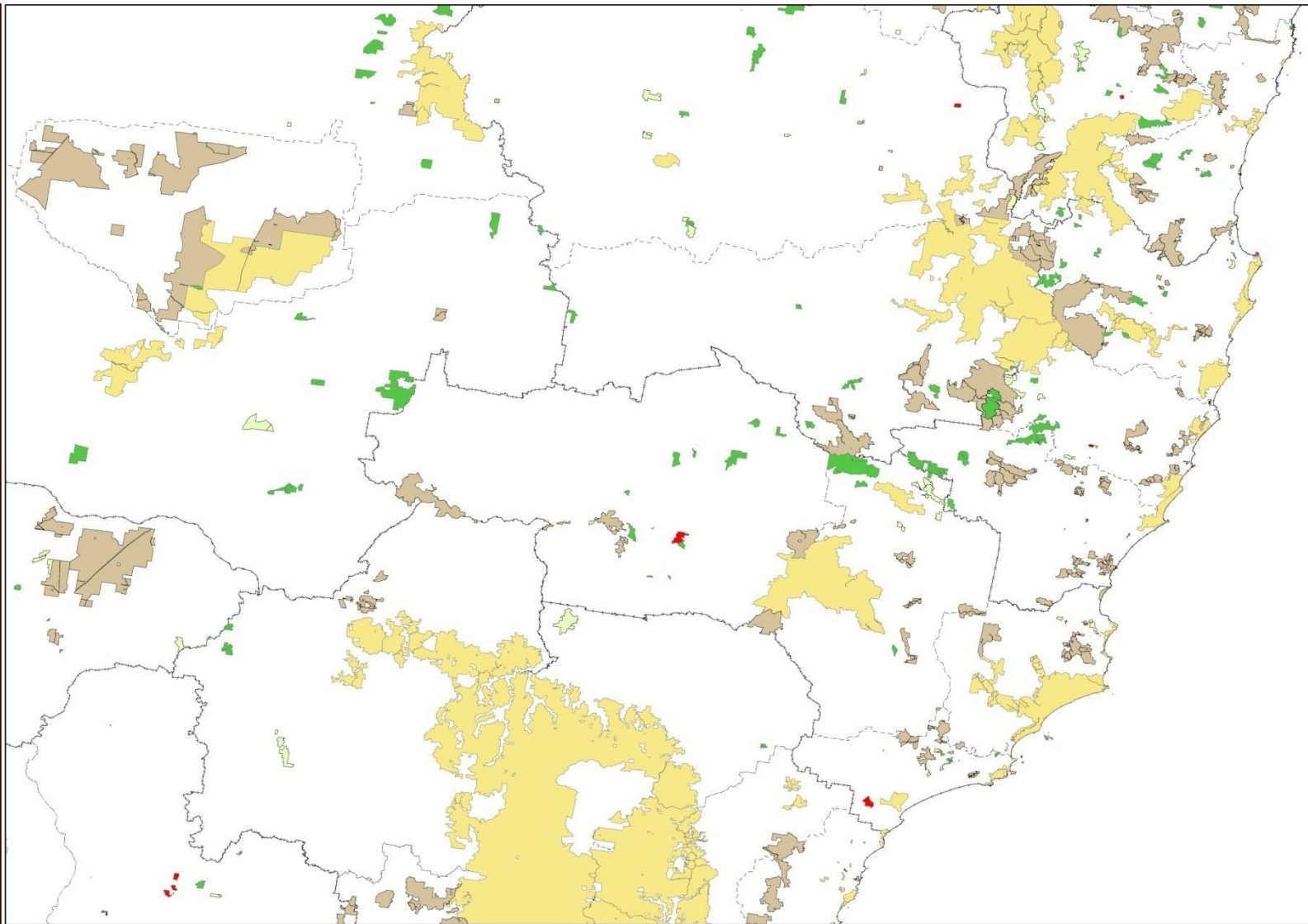
**Legend**

**NSW Parks Estate**

**TypologyGroups**

- IconicHighNeigh
- ModOldFewVisRural
- SmlModVisrural
- LgHighVisYoungSemiRural
- ModLowVisyoungerRural
- Vsmall\_low\_rural
- pwd\_areas
- pwd\_regions

**NSW Park Typologies**



Source: Department of Conservation & Climate Change  
Map Compiled by: Josie Kelman  
Date:20/11/08

**Legend**

**NSW parks**

**DesignScore**

Moderate

High

**NSW Parks Estate**

**TypologyGroups**

IconicHighNeigh

ModOldFewVisRural

SmlModVisrural

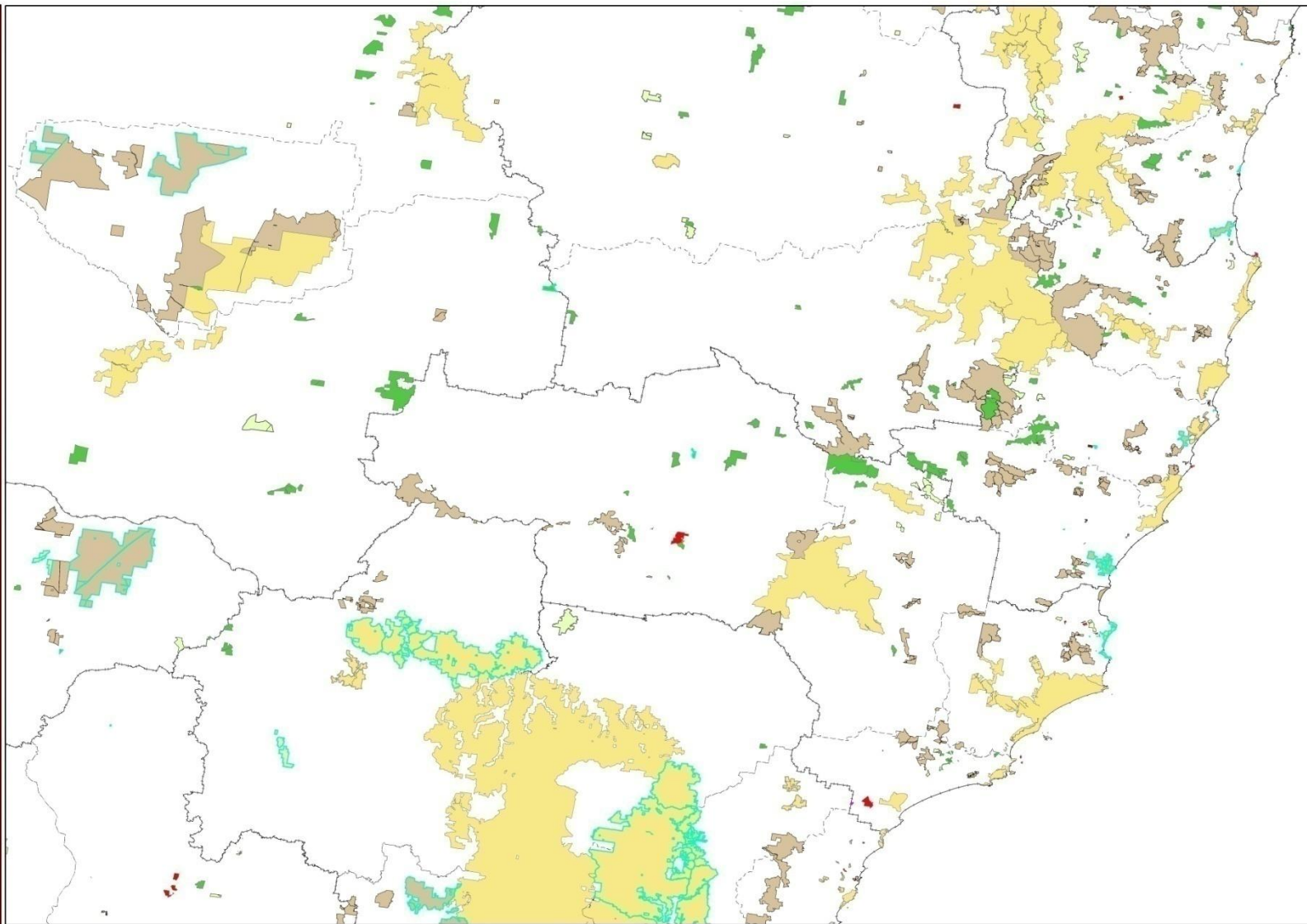
LgHighVisYoungSemiRural

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Source: Department of Conservation & Climate Change  
Map Compiled by: Josie Kelman  
Date:20/11/08

**Legend**

**NSW Parks Estate**

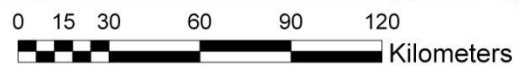
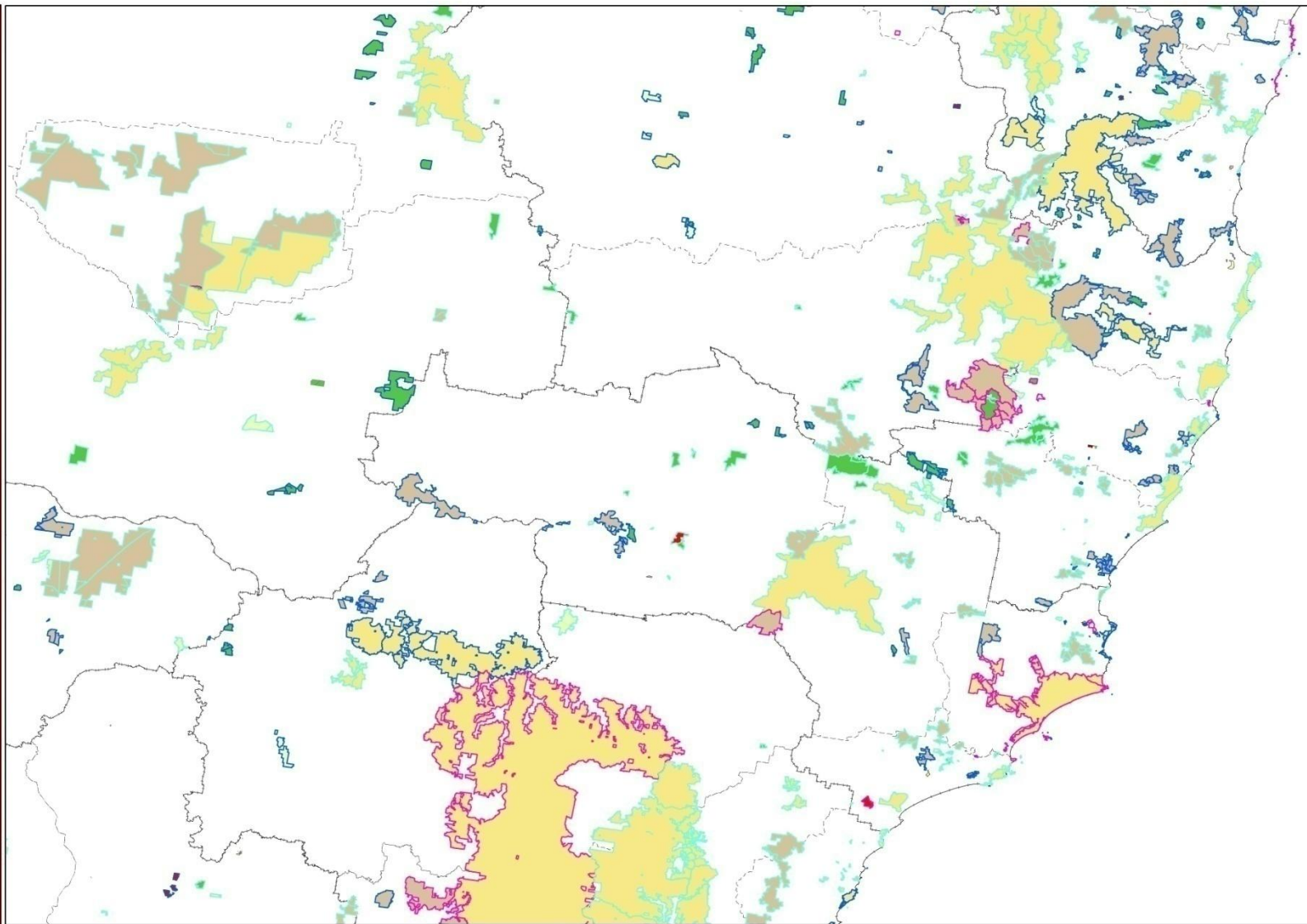
**TypologyGroups**

- IconicHighNeigh
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- ModLowVisyoungerRural
- Vsmall\_low\_rural

**NSW Parks**

**Biological values**

- International
- NationalState
- RegionalLocal
- pwd\_areas
- pwd\_regions



Source: Department of Conservation & Climate Change  
Map Compiled by: Josie Kelman  
Date:20/11/08

# The issue of capturing context

- Australian park networks are typically complex and include small and large parks in a wide range of management settings
- Context does influence the ability to manage effectively so to enable comparison of park ME within systems a method to account for this is needed.
- IUCN categories (the usual approach to grouping parks) do not necessarily capture the complexity. (IUCN Category is focused on designation values)
- By grouping parks according to contextual constraints - park agencies could determine what standards they believe are appropriate in a given contextual situation for ME outcomes

# Capturing context

- For example it would be appropriate to set a higher standard for natural values management in a large park with internationally significant values than in a small park with regionally significant values.
- The use of GIS in contextualising ME performance may support this type of explicit standard setting
- GIS is also useful for communicating to the public the context within which park management occurs – additional layers can also be added e.g. weed spread and distribution information

# Public reporting

- There are inherent problems in reporting results as an overall performance score for an agency
- E.g. 60% of parks have values which are not at risk. So what about the other 40%?
- Well given the range of contextual issues and history of development of parks it is unrealistic to expect them to all be in the same condition
- Those 40% of parks may be new to the reserve system and or seriously impinged by broader landscape contextual issues.
- So to report in context that of all the large iconic parks that have been in the parks system for more than 20 years values are not at risk – This would be a more appropriate finding.

# Landscape Context

- The relevance of landscape context for management has been increasing as awareness of the scale and size of issues (threats) has increased.
- My analysis of the main drivers also reflects the influence of context to management effectiveness in NSW
- Park management agencies need to be able to articulate ME results in context so that results are not misinterpreted.

# Thank-you

- The approach presented here provides a means of explaining (at least in part) the context for management within the broader landscape
- Want to know more?
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