

A thematic assessment of geodiversity in New South Wales:

A project to assess the level of representation of key
geo-themes within DECCW managed reserves

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Background

- The NSW National Parks Establishment Plan 2008, identifies places of geological significance as one of the priorities for the building of the reserve system over the next ten years.
- There is a need to quantify the geodiversity of NSW and the levels of representation within DECCW reserves.
- The DECCW karst and geodiversity unit has commenced work on a project to assess the geodiversity of NSW and to identify levels of representation/gaps within the DECCW reserve system.
- The results will provide a “helicopter view” and assist DECCW in identifying the geothemes for further, more comprehensive analysis. Also beneficial for identifying management issues and priorities.

Project scope

- To be undertaken using existing published and unpublished reports, assessments, maps, DECCW Bioregional assessments, plans of management, DIGS and other databases.
- Specialist input to be sought
- Limited site investigation to be undertaken.
- Findings to be presented as succinct statements.
- To be completed in 12 months.

Project methodology

- **To allow for the manageable assessment of NSW abiotic elements, geodiversity was categorised into 16 themes**



Landforms

- Aeolian
- Coastal
- Fluvial
- Volcanic
- Erosional
- Glacial & periglacial
- Karst
- Mountain systems
- Oceanic-(islands/atolls/reefs)
- Meteor impact



Bedrock

- Rocks (type/processes/tectonic & structural features)
- Stratigraphic sites
- Minerals
- Fossils
- Sediments

Soils

- 14 orders of soil



Project methodology

- **An assessment of each geo-theme is being undertaken that includes:**
 - A definition of the geo-theme
 - A description of the geo-theme within NSW including extent, sites, elements and characteristics.
 - The identification of any state/national or international significance that has been assigned or proposed for sites or elements of the geotheme.
 - The representation of each geotheme (and sub elements) within DECCW reserves (using a simple scale with 5 levels).
 - Findings (summary of the assessment)

Fossil sites- (preliminary findings)



Preliminary Findings: Fossil sites

- Due to the significant diversity of fossil types in NSW, their full representation in DECCW reserves is not considered feasible.
- The majority of NSW fossil sites are small in size, under various land tenures and located in cleared or modified land.
- The substantial majority of all significant fossil sites in NSW are not protected in DECCW reserves.
- A total of 53 NSW fossil sites with potential national or international significance, were identified in an Australian Heritage Commission study in 2001 [5]. Only 5 of the 53 identified sites are protected in DECCW reserves.

Preliminary Findings: Fossil sites

- Numerous fossil sites identified as potentially having state or national significance have not been adequately assessed to determine their level of significance.[5]
- Landform elements with a high potential to contain fossil sites (E.g. aeolian lake sediments, lunettes and caves), and some rocks within the Lachlan Fold Belt [5] and isolated areas of western NSW, have yet to be adequately surveyed for fossils.
- A significant number of NSW fossil sites have been destroyed or severely compromised as a result of development or souveniring. Measures are required to preserve intact sites or to mitigate adverse impacts on previously affected sites.

Preliminary Findings: Volcanic landforms



Mount Canobolas-Orange NSW

Preliminary Findings – Volcanic landforms

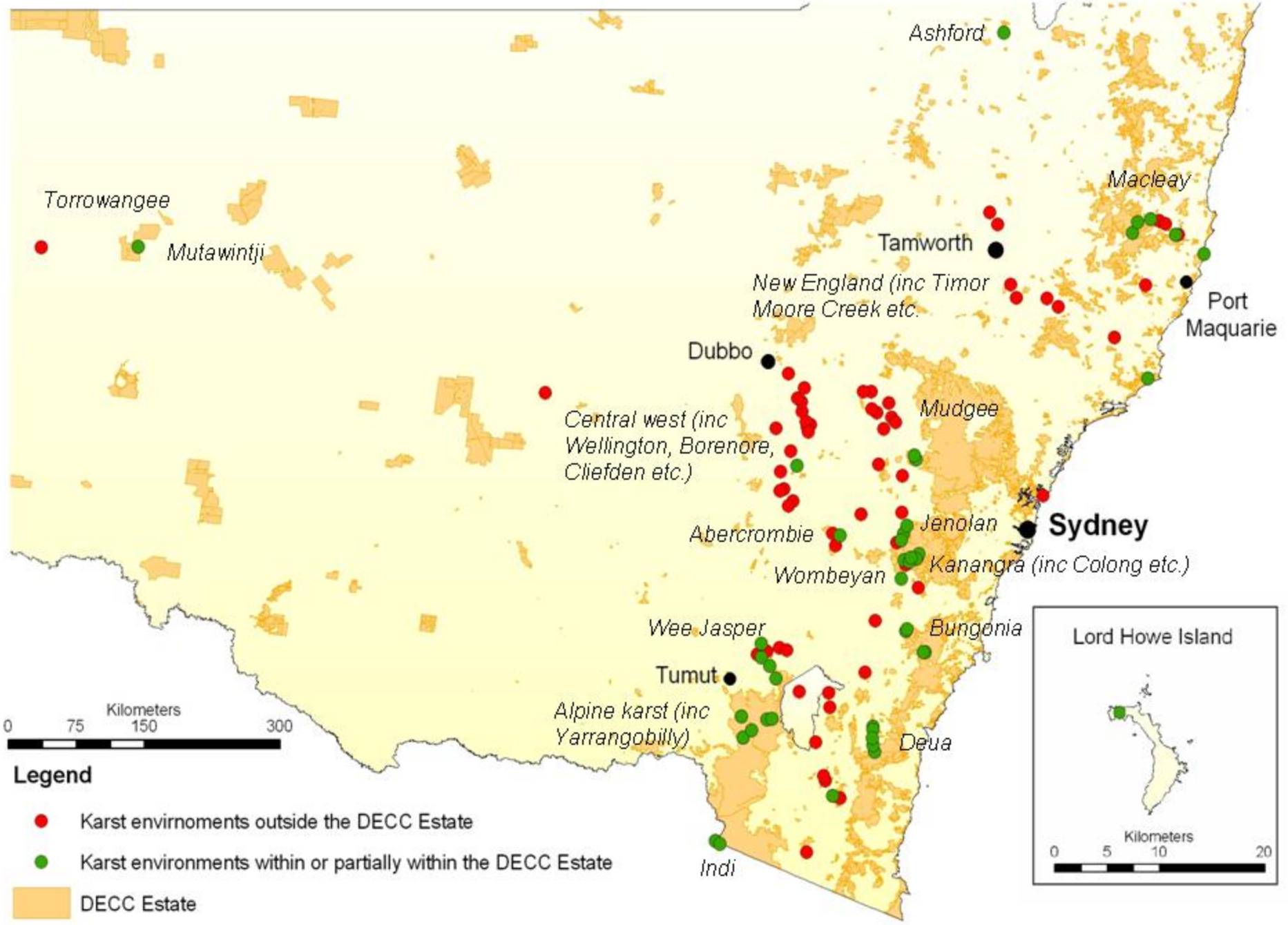
- Remnants of central and lava-field volcanoes are generally well represented in New South Wales parks.
- Some of the landforms and features associated with these remnants are of national and/or international significance.
- Remnants of extensive lava flows are generally well represented in New South Wales parks.
- The Monaro Volcanic Province, one of New South Wales more substantial lava fields, is located off park.
- No tertiary leucitite outcrops are represented in New South Wales parks.

What will the assessment provide?

- Enhanced knowledge of key geodiversity elements and features which are not adequately represented in the DECCW reserve system.
- More detailed information from which the decision to undertake a more comprehensive assessment can be made (if required)
- Technical advice and points of contact

The reservation of karst areas is one example of a recognized priority that the karst and geodiversity unit has been progressing.





Sample layers for karst near Kempsey

