

Prioritising biodiversity conservation action through the application of ecosystem threat criteria:

A case study from New South Wales, Australia



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Summary

Ecosystem risk assessment criteria were developed as part of a threat status assessment of finely classified plant communities in the New South Wales Vegetation Classification and Assessment database (NSWVCA) (Benson 2006, Benson et al. 2006, http://www.rbgsyd.nsw.gov.au/science/hot_science_topics/vegetation_of_nsw).

The NSWVCA inputs to natural resource assessment and environmental planning. It also assists with nominations and listings of endangered ecological communities under Australian and New South Wales threatened species laws.

Similar threat assessment approaches to conservation have been proposed by other researchers, including Rodriguez et al (2007). While IUCN has developed Red List Species risk assessment criteria and definitions for protected areas, it has not yet tackled risk assessment for ecosystems. Preliminary criteria have been developed by a group of international experts. If risk assessment criteria are to be widely accepted and used, they will need to apply to a range of thematic levels of ecosystem classification used in environmental planning and assessment by different jurisdictions around the world.

The NSWVCA Project

The NSWVCA is classifying vegetation to the plant association level across the 80 million hectares of NSW. The database contains 90 fields of information including scientific and common names, characteristic plant species, edaphic features, occurrence in planning regions, links to other NSW and Australian ecological classifications, lists of threatening processes, threat codes, areas in protected areas, protected area adequacy code and up to three photographs of each community.

NSWVCA Risk Assessment Threat Criteria

Each plant community listed in the NSWVCA database is assigned a threat code: Critically Endangered, Endangered, Vulnerable, Near Threatened, Least Concern. Descriptions of the threat categories, threat criteria and definition of terms used in the criteria, are given in the Threat.doc file available at the web site.

The six threat criteria in the NSWVCA are:

1. *Decline in Distribution*: using remaining extent thresholds based on fragmentation theory;
2. *Area of Occupancy Coupled with Threat*: identifies communities with limited geographical range that are under threat;
3. *Loss of Key Species*;
4. *Loss of Integrity, Condition, Recoverability* (i.e. loss of ecosystem function);
5. *Rate of Continuing Decline*;
6. *Quantitative Analysis of Probability of Decline*.



NSWVCA ID277 Yellow Box (*Eucalyptus melliodora*) – Blakely's Red Gum (*Eucalyptus blakelyi*) grassy eucalypt woodland. **Endangered** using criteria 1 & 4 in the NSWVCA. Mainly cleared and weed infested.



NSWVCA ID64 Halophytic shrubland on saline dry lakes in the arid zone. **Least Concern** using NSWVCA threat criteria 1 & 4. Mainly intact and in good condition.



NSWVCA ID27 Weeping Myall (*Acacia pendula*) low open woodland on alluvial semi-arid plains in NSW. **Endangered** using NSWVCA threat criteria 1, 4 & 5.



NSWVCA ID66 Mound Springs sedgeland / grassland of the NSW arid zone. **Critically Endangered** using NSWVCA criteria 1, 2, 3, 4. The main threat is hydrological drawdown of aquifers.



Publications of versions of the NSW Vegetation Classification and Assessment project are progressively covering NSW. CDs contain updated versions of the NSWVCA database and reports for major planning regions to assist with land management.

http://www.rbgsyd.nsw.gov.au/science/hot_science_topics/vegetation_of_nsw.

References: Benson, J.S. (2006), Benson, J.S., Allen, C., Togher, C. & Lemmon, J. (2006), IUCN (1994), IUCN (2006), Rodriguez, J.P., Balch, J.K. & Rodriguez-Clark, K.M. (2007). Full references are available from J.S. Benson john.benson@rbgsyd.nsw.gov.au. Details of the threat criteria and the NSWVCA project are at: http://www.rbgsyd.nsw.gov.au/science/hot_science_topics/vegetation_of_nsw.

Acknowledgements: The Australian Natural Heritage Trust. The Design & Editorial section of the Royal Botanic Gardens and Domain Trust Sydney designed the poster. Photos: Jaime Plaza

