Risk assessment for Australian ecosystems

On this page you will find:

- Project overview
- Products and outcomes
- Workshop  Report

Project overview
The world’s biodiversity continues to diminish as human populations and activities expand (Hoekstra et al. 2005). The IUCN has developed a new risk assessment protocol for ecosystems (Keith et al. 2013) to complement its Red List criteria for threatened species as an international standard for monitoring and reporting on global trends in biodiversity and planning action for conservation. In Australia, threatened ecosystems (known as ‘ecological communities’ (cf. habitat types in Europe) may be listed for protection under various state or national legislation but the listing criteria are divergent among the different jurisdictions and no systematic risk assessment of Australian ecological communities (ecosystems) has been carried out. The lack of a unifying assessment framework has hampered consistency of assessments across different jurisdictions and also within agencies. The Hawke Review into the Environment Protection and Biodiversity Conservation Act recommended better alignment between state and Commonwealth listing processes (Hawke 2009).

This ACEAS working group will examine applications of the IUCN Ecosystems Red List criteria in the Oceania region. This project will establish an Oceania regional working group comprising specialist members of the IUCN scientific development team; members of the Long Term Ecological Research (LTER) subfacility of TERN and policy managers and scientists representing major Australian and New Zealand conservation agencies and the IUCN Oceania region. It will also link to the comprehensive assessment underway in the Americas. It will involve three TERN facilities (ACEAS, LAMPS, AusCover) which will provide an excellent opportunity to value-add a practical application to TERN’s core investments (Lindenmayer et al. in press). Proposed outcomes include research papers on protocol comparisons as well as data needs and standards, establishment of networks linking TERN scientists and data sets to end users, training of agency managers and applications of the new protocol to Australian ecosystems.

References


doi:10.1371/journal.pone.0062111

For further information about the activities of this group, please contact the Principal Investigator, David Keith.
Products and outcomes

Special Issue of Austral Ecology: Ecosystem Risk Assessment

A Special Issue of Austral Ecology showcases one, if not the, first systematic applications of the IUCN Red List of Ecosystem criteria for risk assessment. The Guest Editor for the Special Issue, David Keith, the co-ordinator of this Working Group, concludes in his Introduction (Keith, 2015) that the IUCN Red List of Ecosystem criteria will help improve the scientific rigour of statutory listings, and could also provide a unifying framework for the suite of listing processes that differ among jurisdictions for historical reasons. When integrated with a comprehensive ecosystem typology, ecosystem Red List assessments can also provide critical input into systematic conservation planning. The case studies presented in this Special Issue demonstrate a range of analytical approaches to risk assessment framed to accommodate data of varying quality and abundance.
In order for systematic, cross-border assessment of risk to take place, however, Dave concludes by calling for:

1. a systematically spaced typology of ecosystems,

2. the high-medium spatial data required,

3. long-term ecological monitoring, and

4. cross-disciplinary collaboration.

As is shown in this Special Issue, risk assessments can contribute strategically to better outcomes for ecosystem management.

Papers included from this Working Group (all papers are open-access)


Williams R.J., Wahren C.H., Stott K.A., Camac J.S., White M., Burns E., Harris S., Nash M.,


**In the same issue**


Our meeting was held during 11-15 March 2013 on Stradbroke Island. We began with a skype hook up with theme leader of the IUCN Red List of Ecosystems, Associate Professor Jon Paul Rodriguez, based at Centro de Ecología, Instituto Venezolano de Investigaciones Científicas in Caracas, Venezuela. Jon Paul gave an international perspective on the motivations behind the development of a Red List protocol for ecosystems, its relationship to the existing species Red List and its intended use as an aid to global environmental reporting and conservation planning.

We then had an extended plenary session on the scientific foundations of the newly developed Red List of Ecosystems criteria, led by David Keith. This included discussion and question/answer sessions on the underlying concepts of the method and their application to practical risk assessments in an Australian context. Phl Pisanu (SA DENR) then presented an example application of the Red List criteria to a South Australian ecosystem.

On the second day, Matt White (SEWPaC) presented an overview of Commonwealth listing processes for ecological communities under the EPBC Act and a discussion of issues related to better alignment of listing practices across Australian federal, state and territory jurisdictions.

Elaine Wright (NZ DoC) and Robert Holdaway (Landcare Research) then presented a perspective on the New Zealand policy environment and research activities. Emily Nicholson followed up with a summary of her previous review of global risk assessment protocols as background to a detailed review of Australian protocols.

We spent the remainder of the day scoping the structure of this review and compiling required information on the protocols and practices currently used in each jurisdiction.

The third day began with a presentation by Emma Burns (ANU) on TERN's Long Term Ecological Research Network (LTERN), describing the range of ecosystems it currently samples, the research infrastructure and time series data being collected, and the current network projects including a book on environmental change.

Alfredo Huete (UTS) then gave an overview of TERN's AusCover facility, the remote sensing products under development and related projects addressing time series data on a range of ecological processes.

A third presentation by Tony Auld (NSW OEH) identified the types of data required for ecosystem risk assessment, illustrated by Australian examples.

There followed a group discussion of how TERN, AusCover and related studies producing
ecological time series data could contribute to ecosystem risk assessment. Tracey Regan then led a discussion to identify potential case studies for ecosystem risk assessment. We spent the remainder of the day scoping these case studies, as well as a review of data requirements for ecosystem risk assessment.

The fourth day was spent working in small groups on detailed case studies to assess risks to particular ecosystems within the expertise of the working group. These included: snowpatch herbfields; tropical lowland rainforests; tropical riparian Melaleuca forests, Acacia loderi shrublands; Lake Eyre Basin wetlands; Acacia loderi shrublands; Lord Howe Island cloud forests; Banksia woodlands of the Swan coastal plain; and active sand dunes of the New Zealand coast. We also progressed work on the comparative review of Australian risk assessment protocols and further scoped out a review of data requirements for ecosystem risk assessment.

On the final day, we reviewed progress on the two review papers and the case studies, and continued working on these tasks until close of the meeting.

Since the meeting, we have continued to work out of session to complete case studies and write up the reviews. By the time of writing (end of May 2013), we have a manuscript ready for submission reviewing Australian risk assessment protocols in comparison the IUCN Red List criteria and identifying opportunities for better alignment among different jurisdictions. We are continuing to collaborate on case studies and the review of data requirements for ecosystem risk assessment.
Sustainability and Environment), Stephen Harris (Tasmania Department of Primary Industries, Parks, Water and Environment) and Phil Pisanu (South Australian Department of Environment, Water and Natural Resources).

**Absent:** Peter Harrison (Southern Cross University), Richard Kingsford (University of New South Wales), Emily Nicholson (University of Melbourne), Matt White (Department of Sustainability, Environment, Water Population and Communities), Dick Williams (CSIRO), Bruce Wilson (QLD Department of Environment and Heritage Protection).