New Red List developed for threatened ecosystems

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Scientists have developed a new Red List system for identifying ecosystems at high risk of degradation, similar to the influential Red List for the world's threatened species.

The team carrying out the research was convened by the International Union for Conservation of Nature and led by Professor David Keith, of the University of New South Wales and the NSW Office of Environment.

The study, which illustrates how the framework for risk assessment applies to 20 ecosystems around the world, including eight in Australia, is published today in the Public Library of Science journal, *PLoS ONE*.

Professor Keith, of UNSW's Australian Wetlands, Rivers and Landscapes Centre, AWRLC, said that ecosystems around the globe are facing unprecedented threats. This affects biodiversity and - increasingly - the services that living organisms provide to people, including clean water, and agricultural and fisheries production.

"This is one of the world's most significant conservation challenges and we really need a better system for understanding the risks to the world's ecosystems, so that we can make more informed decisions about sustainable environmental management.

"Now, for the first time, we have a consistent method for identifying the most threatened ecosystems across land, freshwater and ocean

environments," said Professor Keith.

One of the authors, Professor Richard Kingsford, Director of the AWRLC said: "The most encouraging thing about this initiative is that it focuses attention on the habitats of our biodiversity. We can see it applying to the hundreds, or even thousands, of species that might live in an ecosystem".

The method evaluates multiple symptoms of risk produced by different processes of ecosystem degradation.

"Changes in the distribution of an ecosystem, its physical environment and its component species can each tell us something different about the severity of risks, and these symptoms can now be assessed in standard ways across different types of ecosystems," said Professor Keith.

The new system is flexible, enabling it to handle a range of different sources of information, depending on the specific processes driving degradation of each ecosystem.

The *PLoS* study illustrates the implementation of the framework using 20 case studies encompassing rainforests, wetlands, coral reefs and other major global ecosystems.

"This is a major breakthrough for the challenge of managing ecosystems more sustainably. We will be able to apply it across global, national and state boundaries for consistent state of environment reporting," said Dr Emily Nicholson, of the Centre of Excellence in Environmental Decisions at the University of Melbourne, a co-author of the study.

Dr Jon Paul Rodriguez, at Centro de Ecología, Instituto Venezolano de Investigaciones Científicas, Venezuela, joint leader of the project for IUCN, organised an extensive international consultation process to build

a strong conceptual framework for risk assessment that is well grounded in the practicalities of different ecosystems around the world.

He said the framework was a critical step towards the development of a world view of our environment and all its ecosystems, which IUCN is aiming to complete by 2025.

Provided by University of New South Wales

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