Mapping UNSW Impact

Global Development

Primary SDG	**15: LIFE ON LAND**
Broad theme	Ecosystem threats
Research	Helping countries to assess risks to ecosystems and report on their biodiversity to the UN
Impact region	Myanmar, Madagascar, global scope
Faculty	Science
School/Institute	Biological, Earth and Environmental Sciences
Academic	Professor David Keith
Project partners	ARC funding of $389,000 from 2015-17
	Melbourne University, Deakin University
Related SDGs	13: Climate Action
	12: Responsible Production and Consumption

Elevator pitch

UNSW research has come up with a model to assess the risk of ecosystems that is now the international standard and being adopted by countries like Myanmar to develop conservation reports and strategies to preserve vital ecosystems and forests.

The Challenge: The earth's forests and ecosystems are disappearing rapidly

Forests and other ecosystems around the world are disappearing at an alarming rate. Many of the remaining forests are being degraded because of the increase in humans living nearby sourcing food and resources from them. Animal loss, soil erosion from farming, and pollution are some of the causes of this degradation. Ecosystems are in decline on land, in oceans and in the mountains.

The UN has adopted a Convention on Biological Diversity (CBD) which all but two countries in the world have signed up to. Among other goals, the Convention requires countries to dedicate a percentage of land to protected areas, and to halt rates of forest degradation. Each country must submit a report on their environmental management and biodiversity to the UN by 2020.

UNSW's solution: Create an internationally-approved protocol for assessing ecosystems

In 2008, the International Union for Conservation of Nature (IUCN) announced its desire to establish a protocol for assessing ecosystems at risk around the world. David and his team published their protocol in 2013 and won the Eureka Prize for their efforts. The protocol evaluates the rate of change in ecosystems and the risk of collapse. Time series data, stream flow data, and water quality data are factored into models to assess and predict collapse potential. In 2014 the protocol was adopted by the IUCN as the international standard for conservation planning and reporting.

Since then David and his team have been in demand from countries looking to adopt his protocol for their 2020 reports. Finland, Norway, Colombia, Chile and South Africa have all requested his help around training and how to make assessments under the protocol. Myanmar was recently added to the list. Areas of tropical forest in Myanmar are in relatively good shape compared to other parts of southeast Asia. David is working with the country to keep it that way.

David held an inaugural workshop with Myanmar government, universities and NGOs in July 2017 to kickstart the risk assessment process for the country. This assessment will provide the foundations for the development of the country's conservation strategy. A second workshop will be held in May 2018. With further funding, David is keen to assist Madagascar in their adoption and use of the protocol.

The Impact: Help governments to preserve ecosystems, more equitable use of resources

National governments are using David's protocol to meet biodiversity obligations under UN convention. Other countries are using it to strategically manage important ecosystems. The assessment work provides the foundation to then build a conservation management strategy, preserving important forests and ecosystems.

The protocol is also helping governments at national and local levels to make more equitable allocations of land and resources. Forests are being used by a range of different stakeholders for smaller scale purposes. Water quality in rivers and streams is being sustained, maintaining the health of nearby populations. The protocol also encourages governments to draft new environmental impact laws in their planning departments.

Researcher

David Keith is Professor of Botany in the Centre for Ecosystem Science at UNSW and Senior Principal Research Scientist at the NSW Office of Environment and Heritage. He specialises in the processes and causes of change in ecosystems and species populations. David serves on international committees for the development of IUCN Red Lists for threatened species and ecosystems, and is a current member of the Commonwealth Threatened Species Scientific Committee. He is driven by a deep interest in nature and the desire to look after it for the benefit of society.

Ben Falkenmire 02.11.17