

## **The Applied Environmental Decision Analysis (AEDA) Research Hub: A Commonwealth Environment Research Facility co-hosted by the School of Botany.**



Applied Environmental Decision Analysis  
Commonwealth Environmental Research Facility

Which marine reserve design is most robust to the impacts of climate change, commercial fishing and coral bleaching? How many hectares of Mountain Ash forest can be logged before we lose Leadbeaters possum forever? What is the most efficient allocation of a finite budget for the surveillance and control of weed invasions in the Alpine National Park? What is the best strategy to quarantine healthy Tasmanian Devil populations? How much money should we spend on monitoring rare plants to be sure that we will detect a population crash in time to do something about it? Can we trust experts, and what should we do if experts disagree? Which species should be on the endangered species list, who gets to decide, and how should the list be used to allocate finite conservation resources?

Answering any of these questions well requires skills and techniques from a range of disciplines including (but not limited to) ecology, mathematics, economics, social science, philosophy and computer science. Decision analysis can be loosely defined as the art of combining all of the aspects of decision making in a systematic, transparent and repeatable way, in order to reach a decision that maximises community net-benefit. One of the defining features of environmental decisions is that they are usually made in the face of great uncertainty. Accounting for this uncertainty in the decision process is one of the great challenges facing managers, policy makers and decision analysts.

The Applied Environmental Decision Analysis (AEDA) Research Hub was established in 2006 as part of a research initiative of the Department of Environment and Water (then DEH). The initiative aimed to establish a series of 'hubs' to foster excellence in environmental research and collaborations between leading environmental research groups. The AEDA hub will receive \$7.5 million over four years, with co-contributions from University of Melbourne and School of Botany, to develop environmental decision analysis theories and state-of-the-art environmental decision support tools.

The AEDA Hub is comprised of three primary nodes based at the University of Queensland (coordinated by Hub Director, Professor Hugh Possingham), The University of Melbourne (coordinated by Hub Dept Director, Dr Brendan Wintle), and the Australian National University (coordinated by Professor David Lindenmayer). Each node will increase its research activity in decision theory research with a substantial injection of new research fellowships, and post-doctoral and post-graduate research positions.

The named researchers on the Hub reflects the multi-disciplinary nature of environmental decision analysis and include experts and some world leading researchers in conservation planning (Bob Pressey – James Cook University, Atte Moilanen – University of Helsinki, Hugh Possingham – UQ), mathematical decision theory (Yakov Ben-Haim – The Technion Isreal, Helen Regan – San Diego State), philosophy (Mark

Colyvan – Sydney University), social and environmental research (Sarah Bekessy – RMIT), risk analysis (Mark Burgman - Botany), ecological modelling and statistics (Michael McCarthy – Botany, Brendan Wintle – Botany, Martin Dreschler - Leipzig), field ecology (David Lindemayer – ANU, Kirsten Parris – Botany, Clive McAlpine – UQ).

The AEDA hub will foster close collaborations with a number of other researchers, and state and commonwealth agencies in order to address conservation and environmental management questions of national importance. Over 20 new postdoctoral research positions will be established across five universities to tackle a range of decision analysis questions based on real case-studies such as those mentioned earlier. After the engagement of new researchers early in 2007, hub activities will ramp up in mid 2007 with the commencement of invited workshops on reserve planning (Brisbane, May), optimal monitoring and surveillance (Tasmania, August), and a joint ACERA/AEDA workshop on modelling non-equilibrium systems (climate change, bio-invasions) to be held at the School of Botany in October.

More information about the AEDA hub, it's members and projects can be found at: [www.aeda.uq.edu.au](http://www.aeda.uq.edu.au)

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Members of the Applied Environmental Decision Analysis CERF Hub. Back row: Bob Pressey, David Lindemayer, Mick McCarthy, centre row: Mark Burgman, Brendan Wintle, Sarah Bekessy, Kirsten Parris, front row: Karen Hurley (Manager), Hugh Possingham (Director), Mark Colyvan, Clive McAlpine. You don't have to look like a dork to be in the CERF Hub, but it helps!