LANDSCAPE LOGIC

LINKING LAND AND WATER MANAGEMENT TO RESOURCE CONDITION TARGETS

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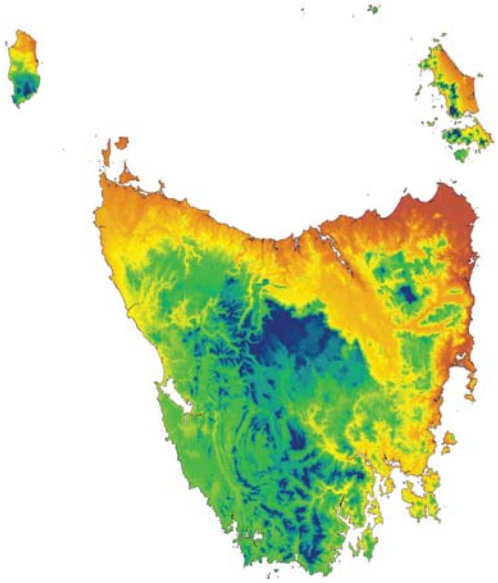
Landscape Logic Project 1: Spatial Analysis and Database

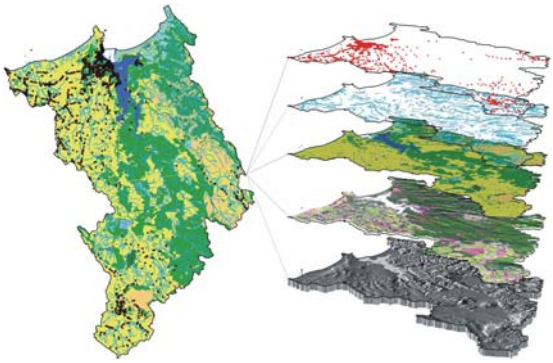
What

This project will develop, support and deliver new and refined spatial coverages of biophysical, socio-economic and natural resource assets, attributes and systems, and GIS-based decision-support tools for projects 2–7. Project 1 contributes background data for the retrospective studies (Project 3 in Victoria and Project 4 in Tasmania) through remotely-sensed imagery and derived spatial coverages, and the development of techniques for their application and analysis to the resource management issues of native vegetation and water quality.



Who

Research staff and postgraduate research students of the University of Tasmania, Tasmanian Institute of Agricultural Research and RMIT University. Professor Tony Norton (UTAS) and Professor Simon Jones (RMIT) lead the activity with other participants including, James Shaddick, Grant Dickins, Dr Gang-Jun Liu, Dr Karyl Michaels, Dr Michael Lacey, Alex Lechner, Kathryn Sheffield, Naoko Miura and Karen Eyles.



Bringing it all together

Landscape Logic projects have in common a spatial, catchment-based focus and Project 1 integrates with other Landscape Logic researchers making available key spatial data, analysing critical landscape interactions and building spatial models of natural processes. The Spatial Analysis and Database project helps address whether previous management interventions have resulted in an improvement of resource condition and determine if key lessons to improve management in terms of both enhanced environmental outcomes and value-for-money have been harnessed.

How

The project has established a GIS-based database. The database and a modelling and mapping framework for spatial research and data analysis of natural resources is being used to quantify historical changes in land use and land management in Victoria and Tasmania.

The GIS database includes over 200 individual spatial datasets covering natural resource and biophysical assets across Tasmania and Victoria. The data is held with the assistance of data share agreements with state-based agencies.

Aerial photography is used for specific research locations along with high-resolution imagery from satellite platforms such as Quickbird, Ikonos and SPOT and the Australian government satellite image archive produced by the Australian Greenhouse Office for the Australian Continental Land Cover and Land Use study and the National Carbon Accounting System.

Tasmanian climate surface datasets and LiDAR-generated DEMs have been developed or are currently in various processing stages.

Spatial data sets enable building of predictive models of how landscapes and natural resources respond to management interventions.

Spatial models can predict changes in factors such as water balance, water run-off, light regimes and temperature on aquatic systems

Spatial data sets and models help to objectively evaluate benefits that NRM investments in riparian vegetation and habitat restoration have provided to river and catchment health.

Landscape Logic is a research hub under the Commonwealth Environmental Research Facilities scheme, managed by the Department of Environment, Water Heritage and the Arts. It is a partnership between: six regional organisations – the North Central, North East & Goulburn Broken Catchment Management Authorities in Victoria and the North, South and Cradle Coast Natural Resource Management organisations in Tasmania; five research institutions – University of Tasmania, Australian National University, RMIT University, Charles Sturt University and CSIRO; and state land management agencies in Tasmania and Victoria – the Tasmanian Department of Primary Industries & Water, Forestry Tasmania and the Victorian Department of Sustainability & Environment.