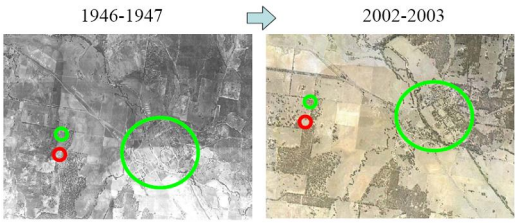
LANDSCAPE LOGIC

LINKING LAND AND WATER MANAGEMENT TO RESOURCE CONDITION TARGETS

VICTORIAN RETROSPECTIVE STUDY PROJECT 3



Comparison of historical and contemporary air photos, in which change in extent can be identified.

- Locations of vegetation loss.
- Locations of apparent vegetation gain.

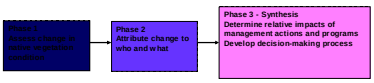
WHAT

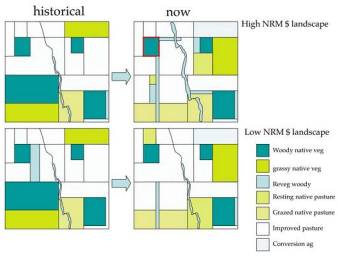
The primary challenge of the Landscape Logic project is to link local actions and interventions with regional or landscape impacts on natural resources, with a view to improving future decision-making. In Victoria we will investigate links between local NRM action and intervention with regional and landscape change in native vegetation condition (NVC).

The Victorian Retrospective Study (Project 3) will investigate the impact of past management interventions on NVC (extent and quality).

The project aims to:

•Improve decision-making capacity of regional NRM bodies for native vegetation management.
•Improve the capacity to report on landscape scale change in native vegetation condition.
•Develop new tools and models that will assist the decision making process.





A hypothetical comparison of high and low NRM investment landscapes, despite considerable variation in the amount of land directly targeted in each, total change in veg extent and condition is often driven by land use in the 'matrix', which governs opportunities for regeneration and co-existence of native dominated systems and production

HOW

NVC contains information about fast and slow processes in vegetation dynamics. We will revisit historical data relevant to NVC change (1940s to the last 5 years) to create response functions for components of NVC for two broad biophysical units; in sites with known intervention history for NVC improvement, and those that may indicate background rates of change. Sites will be selected to take in the major landscape drivers of variation. The new data will be combined with relevant existing data in a Bayesian framework to construct evidence based models of NVC change.

Once response functions are established – that is – the links between landscape drivers, they will be assigned onto parcels of lands within sample landscapes. Motivational and resource drivers of vegetation change will also be recorded and geo-referenced. The project will combine the change in quality models (PHASE 1) with evidence from social research and other data to create narratives of landscape change in native vegetation extent and quality.

A synthesis of rates of change in NVC according to vegetation type and land use (PHASE 1), with the spatial distribution of NVC change profiles (PHASE 2) will be used to evaluate the relative performance of programs and actions currently performed by regional NRM teams.

WHO

Adam Hood (Natural Resources), David Duncan and Graeme Newell (Arthur Rylah Institute) from DSE are currently working on the project. A post-doctoral researcher will complete the main work on the project. The project is Victorian based and is working very closely with the North Central, Goulburn-Broken and North East Catchment Management Authorities. A regional reference group has been formed to help select sites and provide an appropriate practitioner feedback point for the project.

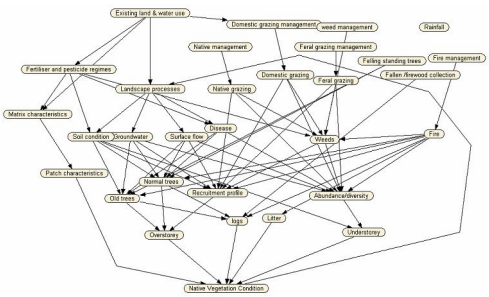
The project will benefit greatly from knowledge and models of NVC change held in the regional and local communities.

BRINGING IT ALL TOGETHER

With Project 6, we will use Bayesian Belief Networks to manage and represent current knowledge about NVC change, and to focus on CMA strategies for investing in improved outcomes for NVC change.

This element will develop during the project, it aims to bring the knowledge development activities together for maximum applied benefit for regional needs, and advancing knowledge about management of the native vegetation resource at landscape scales.

A strong emphasis here is on integration of knowledge as an in input to the development of policy and programs. Already this is a strong driver for new and developing policy and programs in NRM. In Victoria the development of the White Paper for Land and Biodiversity sees evidence for programs as a key driver. The delivery of a means to improve targeting and better link actions to changes in native vegetation condition will be a much sought after outcome for State agencies and regions.



Bayesian Belief Network for Vegetation Condition Change – a work in progress between Landscape Logic Projects 6 and 3, and partners.

A partnership between North Central, North East & Goulburn Broken CMAs, NRM North, South & Cradle Coast, University of Tasmania, Australian National University, RMIT University, the Tasmanian Department of Primary Industries & Water, CSIRO, Forestry Tasmania and the Victorian Department of Sustainability & Environment.