



Changing with the changes

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Landscape science – a vision for SA



- South Australia can lead the development of landscape science
- This science will develop new ways of representing and projecting how our landscapes might look with and without directed intervention
- We need to do this because:
 - It is not possible to manage the complexity of landscapes without new tools and capability and
 - the rate of change (environmental, social and economic) is increasing
- South Australia needs a dedicated multi-disciplinary group that assists the regions identify the best combinations of management for landscape, lifestyle and livelihood.

Landscape science – a vision for SA

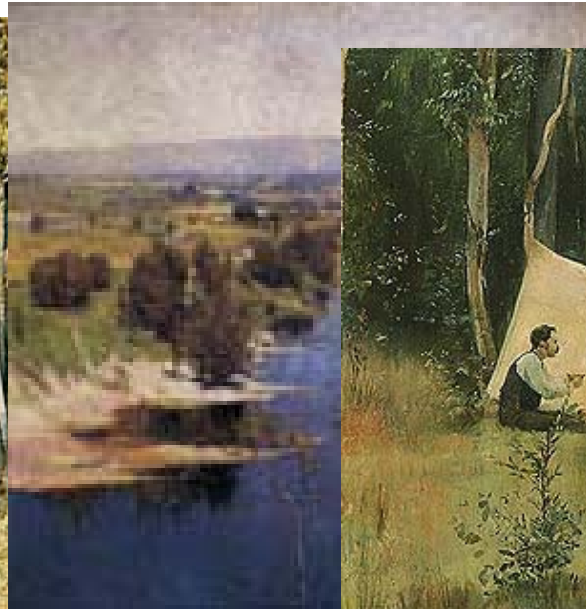
The socio-political context of natural resource science

1950s	1960s	1970s	1980s	1990s	2000s
The age of possibility	The “Lucky Country”	The emergence of ecological awareness	Natural resources management	Ecologically sustainable development	Complex interdependencies
Science is authoritative voice		Science as knowledge (answers)	Increasing challenges - reductionist science has its limits		Integration
National development and ‘wise use’ of resources (1900–1960s) “pioneering exploiter”		Modern environmentalism “custodian and stewardship”			
Suburban growth		Communities		Urban renewal	

[Adapted from Cork et al.,2005]

Landscape science – a vision for SA

- Landscape – elements in an Australian landscape – the “impressionists” or more accurately “plein-air” artists – Tom Roberts, Arthur Streeton





What is landscape science?

- Landscape - is the combination of the (mainly) terrestrial resources sustaining life.
 - The regolith
 - The soils
 - The flora and fauna
 - The water
 - The near ground atmosphere
 - The people
- Science – the application of systematic enquiry and search based on testable evidence



The SA NRM context

- The NRM Act (2004) sets the legislative framework for regional NRM
- What does natural resource management look like?
- The areas are huge, the need for doing things is pressing, the finances and people are always too few!
- How do we prioritise and have some evidence base on which to identify the few actions among the many possible?
- Where will we get the best value in addressing our regional NRM targets? – and all this into changing future conditions!



New ways of developing management options

- Need to address regional NRM plans [where and how do the plans get developed?]
- Need to be evidence based
- Need capability to assess financial implications
- Should recognise the bio-physical, the social and the economically important components of the region

We've recognised the complexity of lots of different components - now we need to bring these together – integration – i.e. treat it as a system in which there are interconnected and interdependent components



Landscapes, Lifestyles and Livelihoods¹

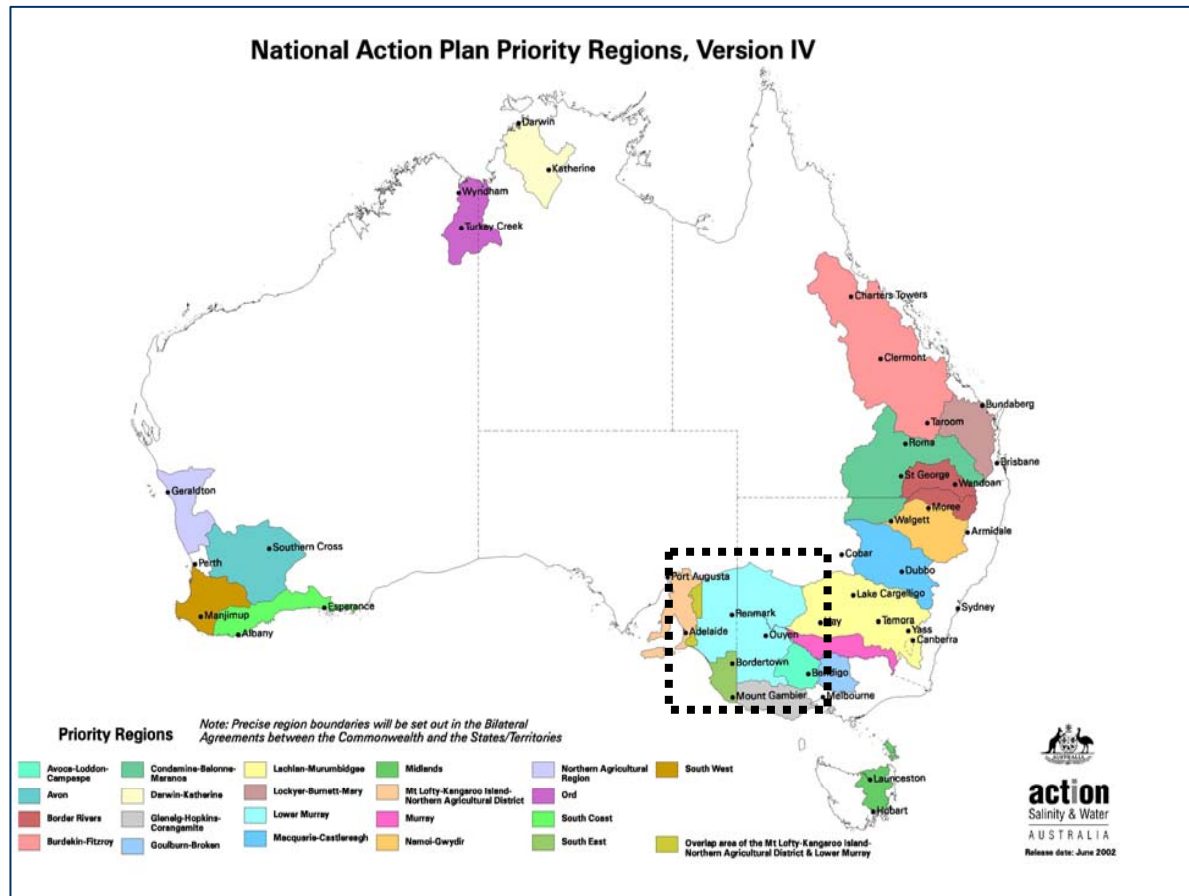
- The landscape science needed in South Australia and beyond must develop and test the options for “changing with the changes”
 - The need is identification of options that convey resilience – the capability to absorb change and bounce back – to avoid catastrophic collapse
 - The need is for new ways of exploring how management of regional natural resources can achieve the most enduring combinations of landscape, lifestyle and livelihood

¹“The Triple Helix” from Andrew Campbell

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An example - Lower Murray Landscape Futures



Mallee/Lower Murray Region

Major Issues:

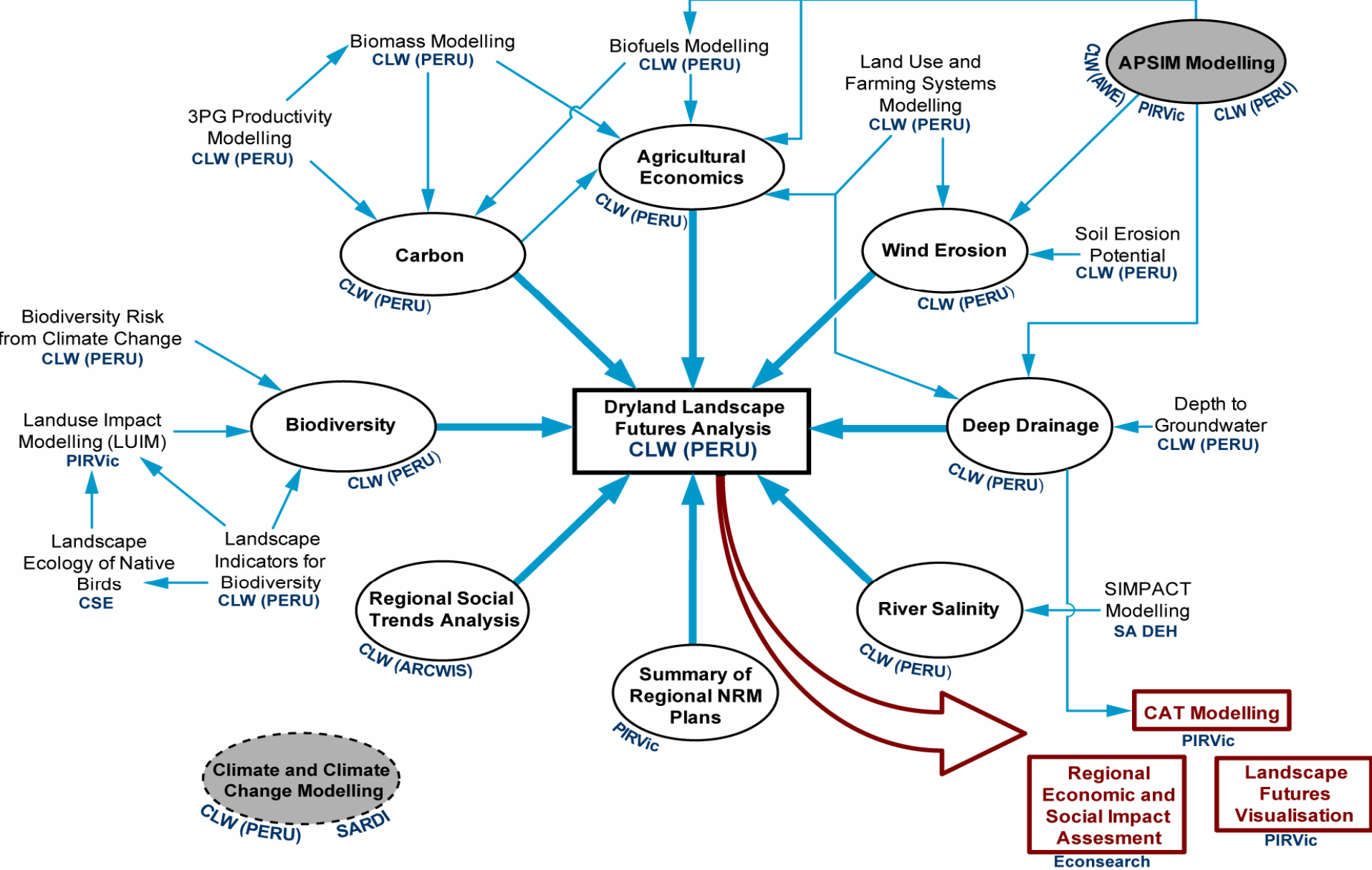
- Community well being:
 - Economic (production and processing, manufacturing, tourism/service)
 - Social (people supporting communities)
 - Adequate infrastructure
- Water allocation
 - Irrigation, environment, tourism
- Salinity management
- Resources repair, maintenance and conservation
 - Soil, water, vegetation, biodiversity

Objective:

- Provide options and assessment of land use changes that have higher water use and environmental benefits:
 - decrease discharge, improve environmental and water quality management, sustain profitability
 - assess impact of environmental allocations of water on the system.

Critical questions to be addressed are:

- Determine the **combination of land uses** (space and time) that will be **economically** feasible and **socially** acceptable
- what **effects** will there be on key assets and regional values
- what **effects** will environmental allocations of water have on the Lower Murray region (biophysical, economic and social).





Bringing it together

- We need a multi-skilled group from NRM regions, agencies and researchers that
 - Can bring data together
 - Identify and develop the models needed to represent the landscape
 - Are in tune with the planning and implementing needs of the regions
 - Use the latest tools and methods to help visualise the landscape options
 - Help train the next generation of landscape modellers
 - Communicate and promote natural resource science
- This group will need a dedicated cooperative governance arrangement

Landscape science – a vision for SA



- South Australia can lead the development of landscape science
- We have a prototype of what is possible
- We need to do this because:
 - It is not possible to manage the complexity of landscapes without new tools and capability and
 - the rate of change (environmental, social and economic) is increasing
- South Australia needs a dedicated multi-disciplinary Centre that assists the regions identify the best combinations of management for landscape, lifestyle and livelihood.