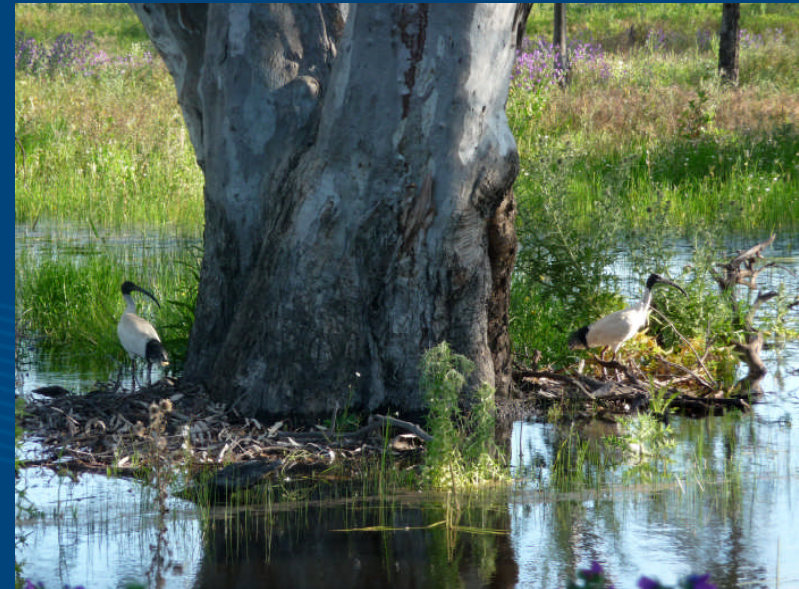


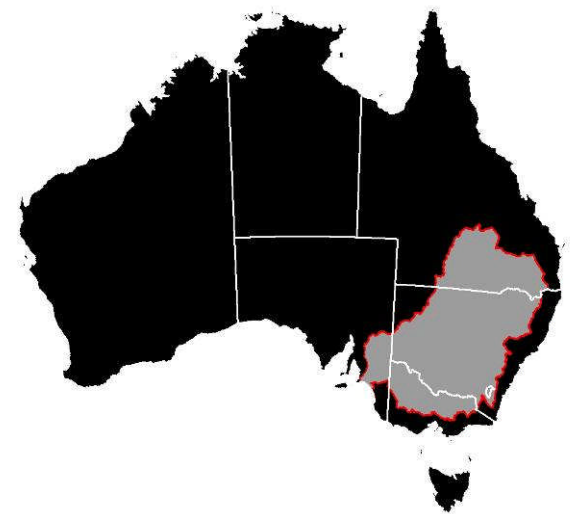
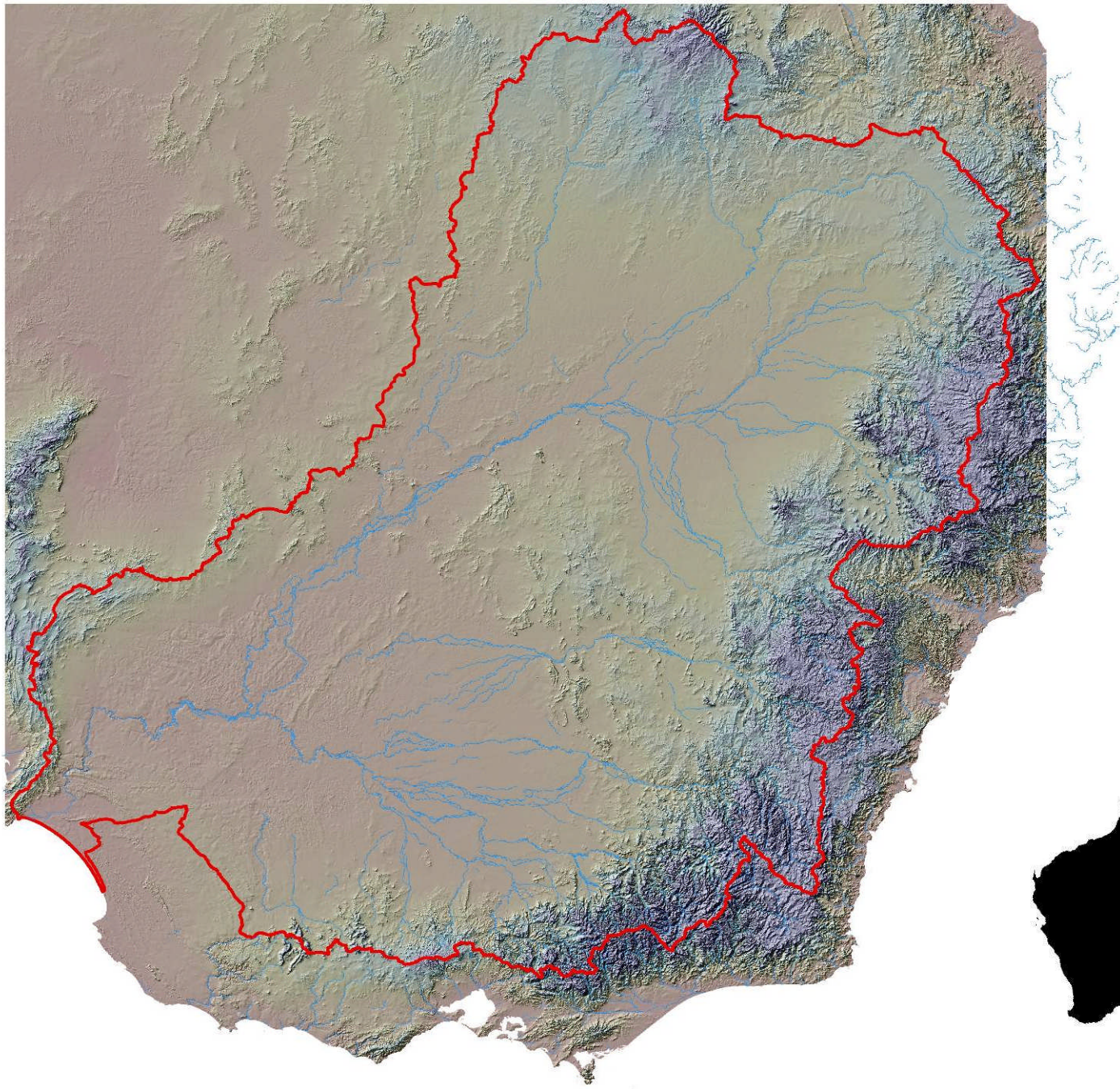


# The Murray Darling Basin: Challenges and Opportunities of Ecosystem Management at the Basin-Scale

**Michael Stewardson and Edward Maltby**



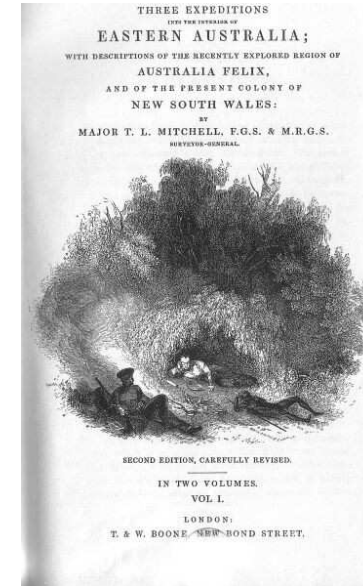






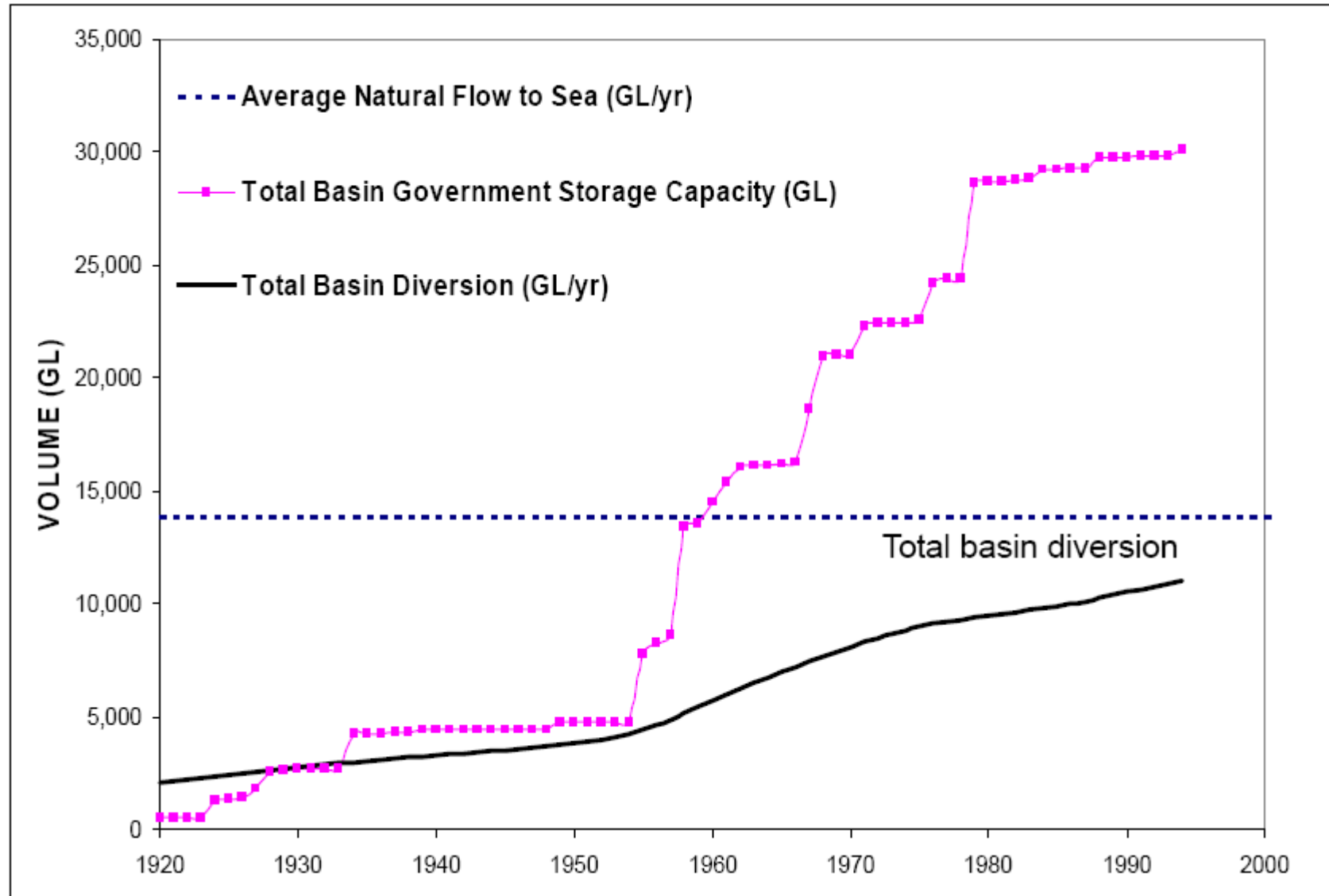
*“The soil in these grassy flats was of the richest description: indeed the whole of the country seemed capable of being converted into good wheat land, and of being easily irrigated, at any time by the river”.*

Major T.L. Mitchell, 1836

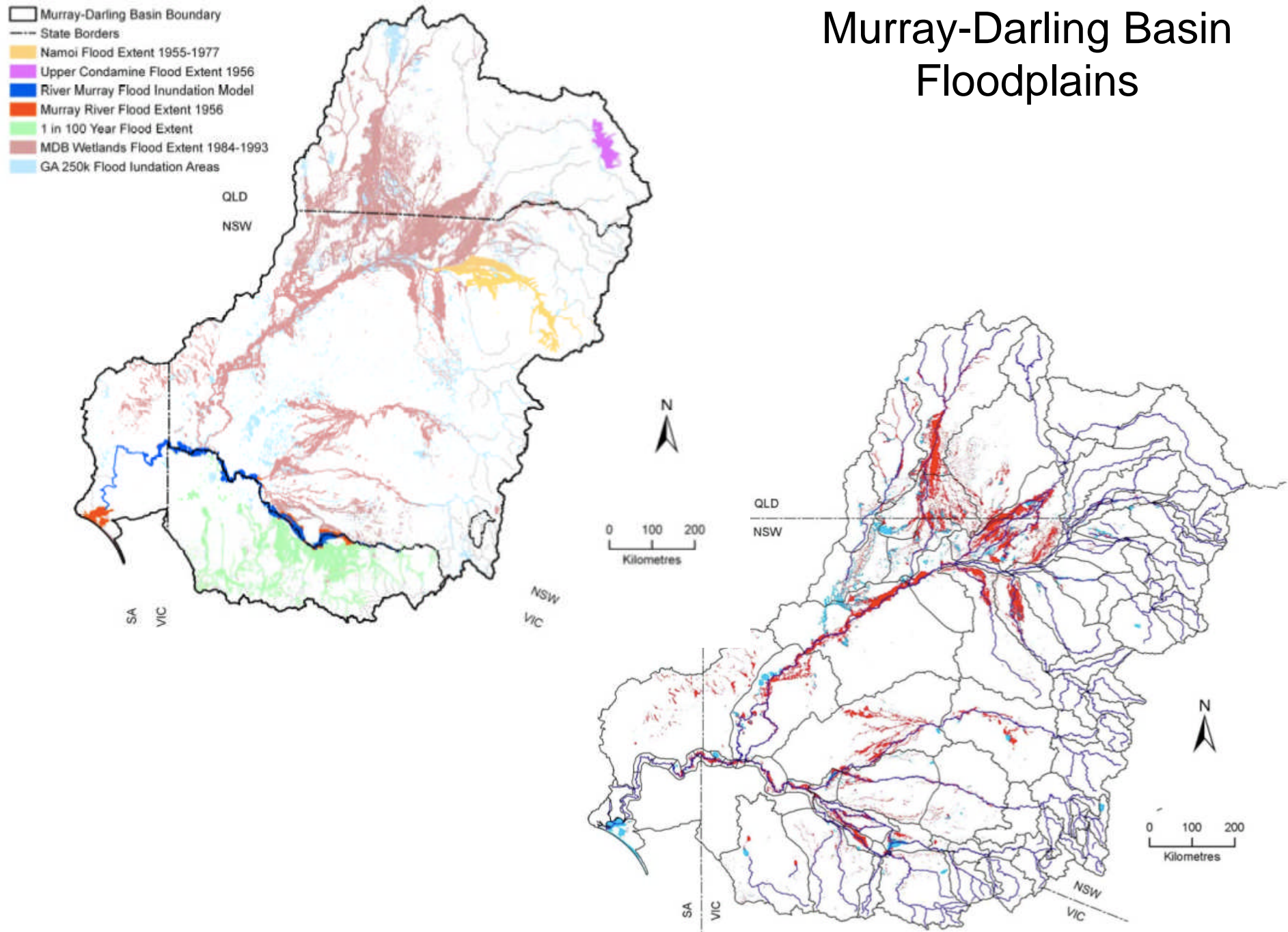


*Australia could never become another America - its soil was too poor, its rains too unpredictable.”* Charles Darwin, 1836





# Murray-Darling Basin Floodplains



Doody, Overton and Pollock (2009)



- The M-D Basin Plan responds to a clear community-wide concern that the basin is over-allocated and a balance requires water to be returned to the environment (P1)
- Protecting ecosystem structure and function are explicitly mentioned in the Water Act as a priority (P5)
- Limits are to be set of water diversions to meet environmental water requirements (P6)
- Recognition that basin-level planning is the appropriate scale for water resources in the basin (P7)
- Some recognition of the threat climate change poses for water scarcity (P9)
- Plan is to find a balance between use and protection (P10)





The Australian, October 15, 2010

How do we make progress when the stakes are high  
and in the face of considerable **uncertainty**?



### How do we define our target?

The objects of this Act are:

- (a) to enable the Commonwealth, in conjunction with the Basin States, to manage the Basin water resources in the national interest; and
- (b) to give effect to relevant international agreements (to the extent to which those agreements are relevant to the use and management of the Basin water resources) and, in particular, to provide for special measures, in accordance with those agreements, to address the threats to the Basin water resources; and
- (c) in giving effect to those agreements, to promote the use and management of the Basin water resources in a way that optimises economic, social and environmental outcomes; and
- (d) without limiting paragraph (b) or (c):
  - (i) to ensure the return to environmentally sustainable levels of extraction for water resources that are overallocated or overused; and
  - (ii) to protect, restore and provide for the ecological values and ecosystem services of the Murray-Darling Basin (taking into account, in particular, the impact that the taking of water has on the watercourses, lakes, wetlands, ground water and water-dependent ecosystems that are part of the Basin water resources and on associated biodiversity); and
  - (iii) subject to subparagraphs (i) and (ii)—to maximise the net economic returns to the Australian community from the use and management of the Basin water resources; and
- (e) to improve water security for all uses of Basin water resources; and
- (f) to ensure that the management of the Basin water resources takes into account the broader management of natural resources in the Murray-Darling Basin; and
- (g) to achieve efficient and cost effective water management and administrative practices in relation to Basin water resources; and
- (h) to provide for the collection, collation, analysis and dissemination of information about:
  - (i) Australia's water resources; and
  - (ii) the use and management of water in Australia.





THE UNIVERSITY OF  
MELBOURNE

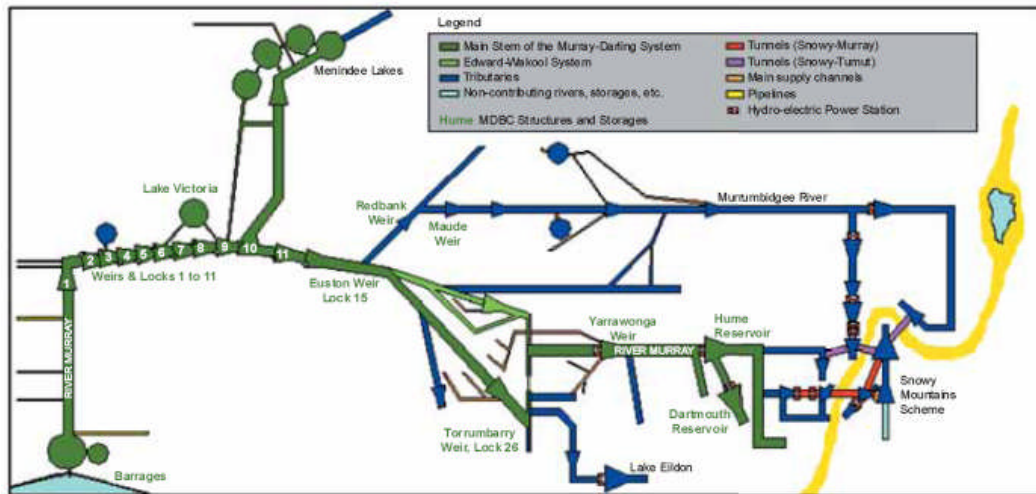
## Some Challenges

How do we plan at the basin level but motivate local initiative

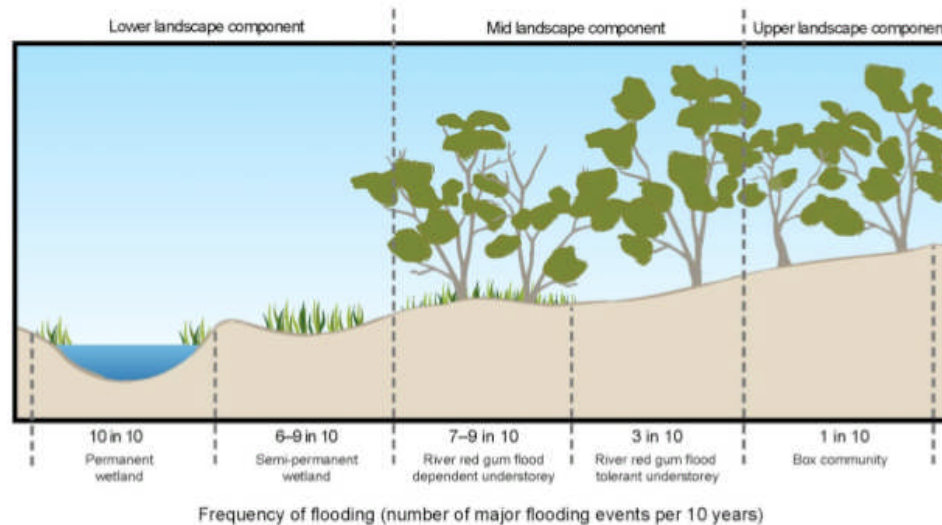




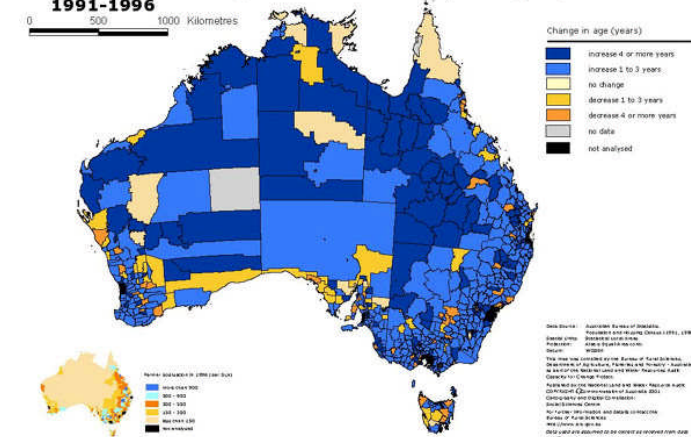
How do we analyse such a complex system?



Ecological Associates (2006)



## 2. Change in median age of farmers and farm managers, 1991-1996







- Clearer evidence-based targets across a range of ecosystem functions
- Institutional, legislative and policy instruments to facilitate an effective and sustained adaptive approach
- Credible tools designed to explore and communicate integrated scenarios and consider a full set of outcomes
- Standards and tools for evidence-based practice in ecosystem management
- Training in interdisciplinary thinking and practice at University

