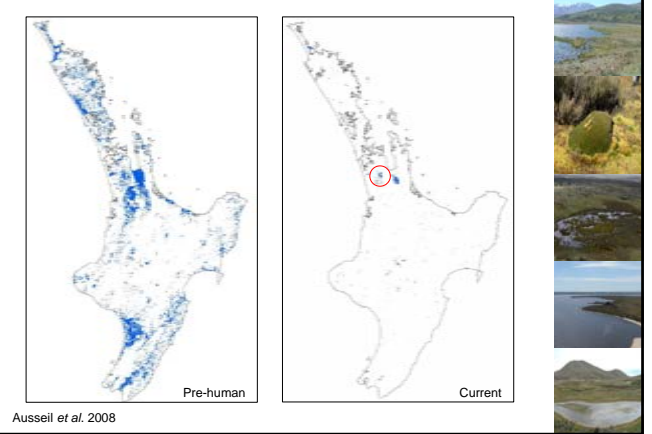


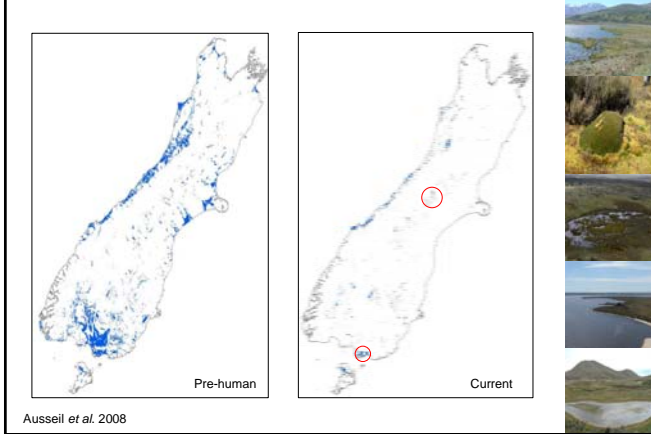
### Wetland reserves: what have we protected since 1990?



### Change in extent of palustrine wetlands



### Change in wetland extent – South Island



### What progress in wetland protection has occurred over the past 20 years?

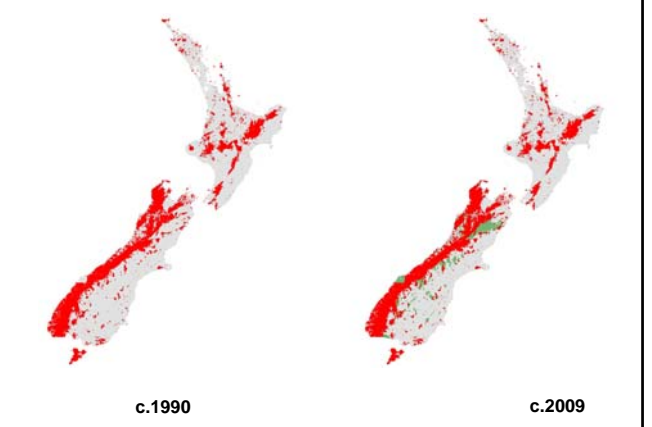


### What does protected mean?

- **Legal definitions**
  - Reserves Act
  - Water Conservation Orders
- **International conventions**
  - IUCN definition of protected areas
  - Ramsar Convention definitions – e.g. maintain ecological character
- **Comprehensive, representative and adequate (CAR)**
  - e.g. Margules & Pressey (2000)
- **Key threatening process are managed effectively?**
  - Implies catchments also need to be protected or managed appropriately

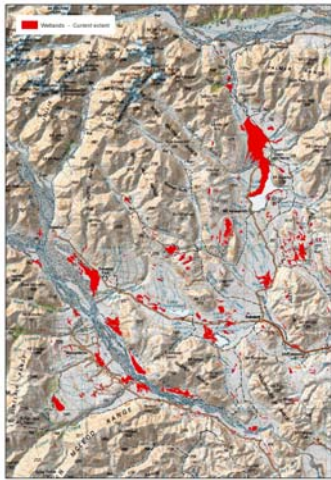


### Changes in DOC estate



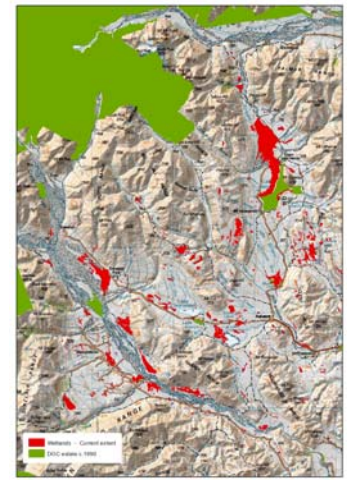
**O Tu Wharekai  
(Ashburton Basin)**

**Current wetlands**  
Ausseil et al. 2008



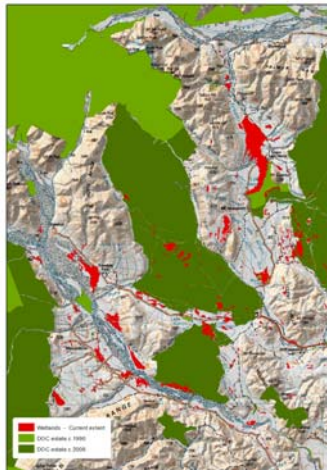
**O Tu Wharekai  
(Ashburton Basin)**

**c.1990**

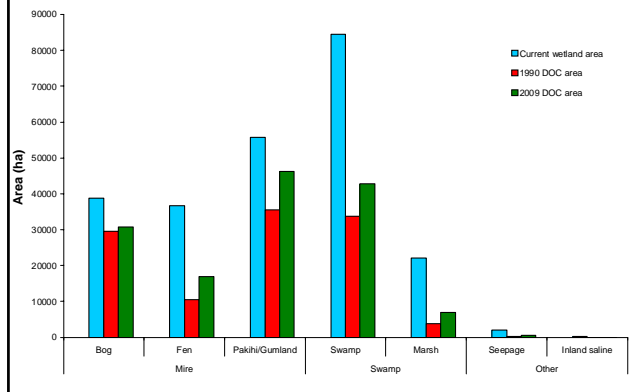


**O Tu Wharekai  
(Ashburton Basin)**

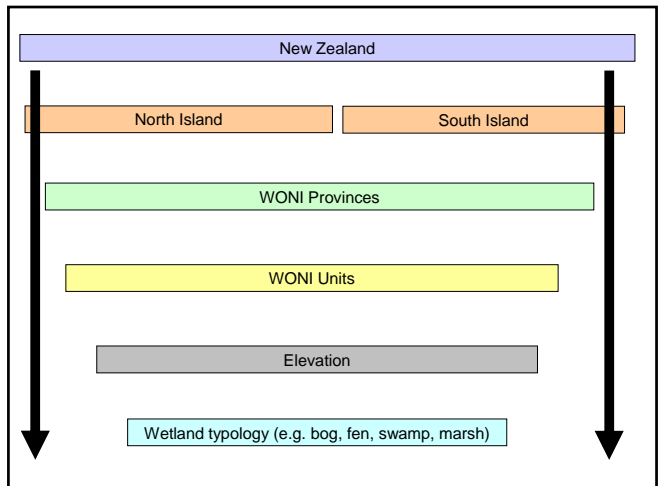
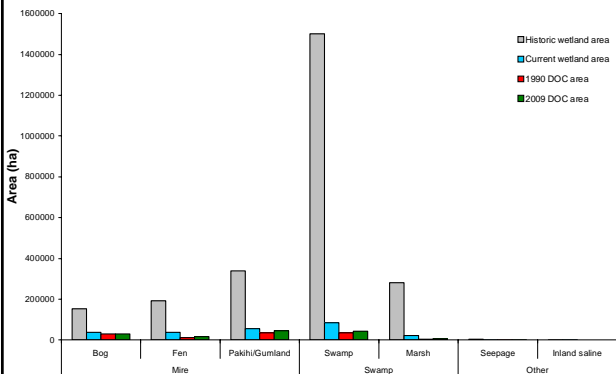
**c.2009**

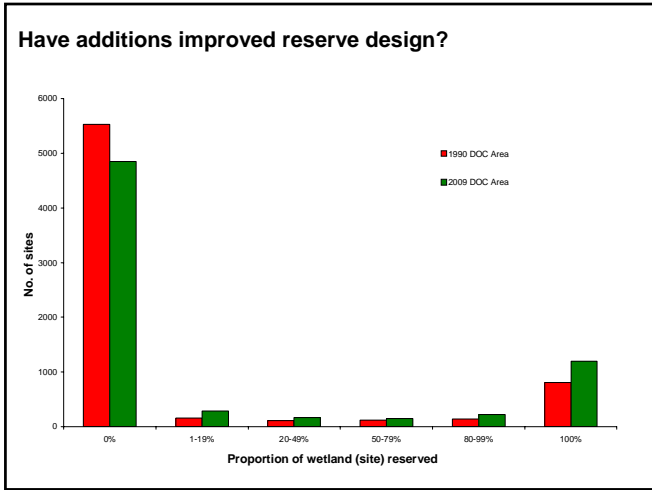
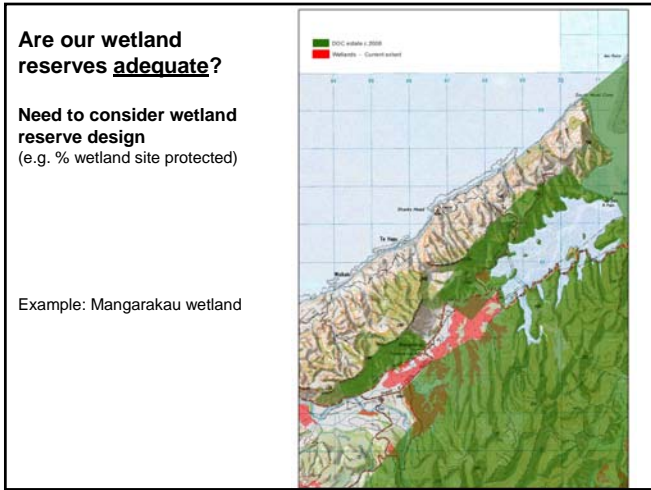
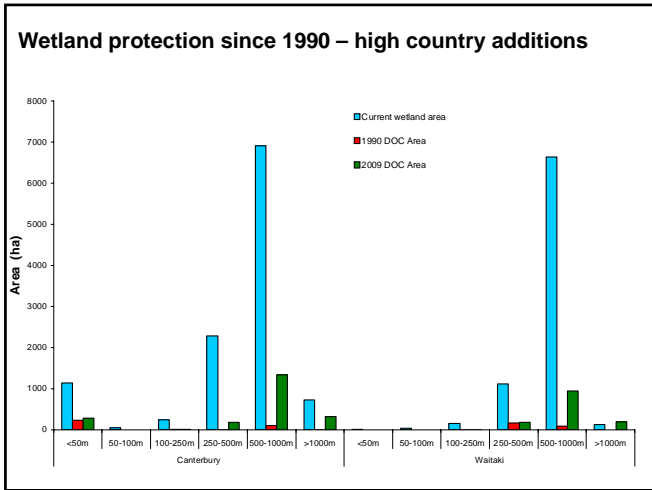
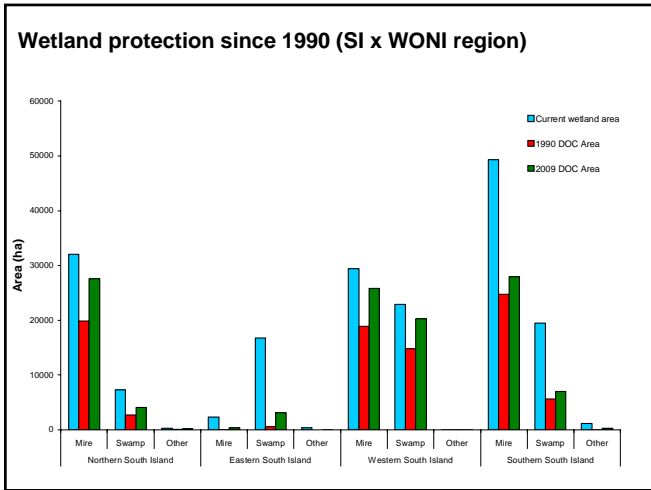
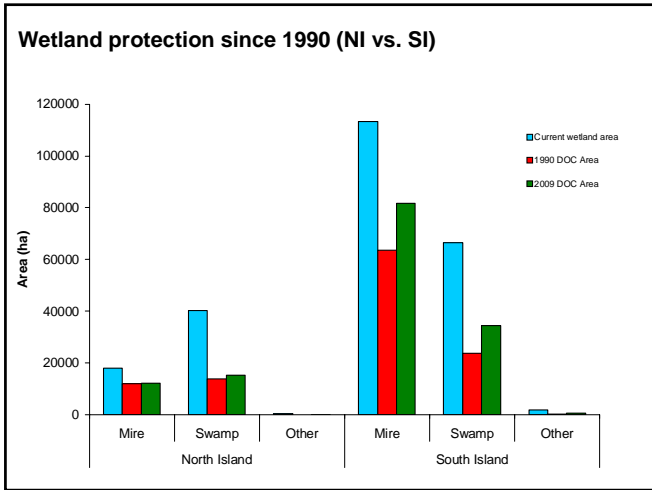
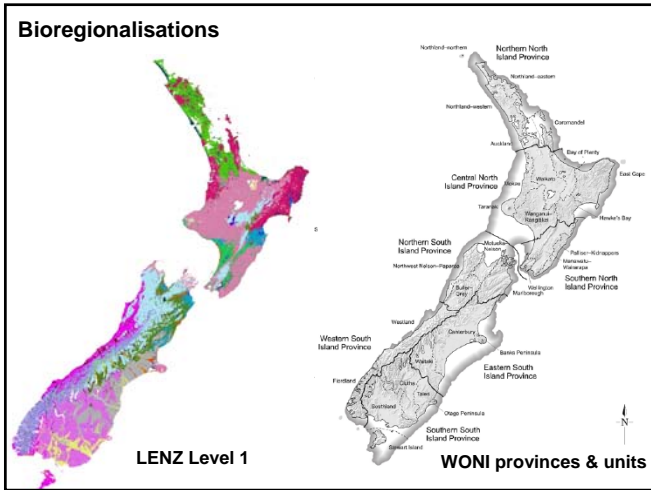


**Wetland protection since 1990 (by wetland type)**

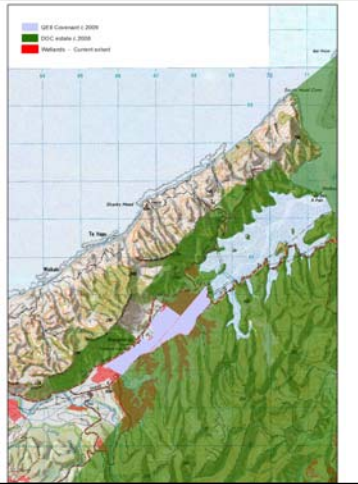


**Wetland protection since 1990 (relative to historical extent)**

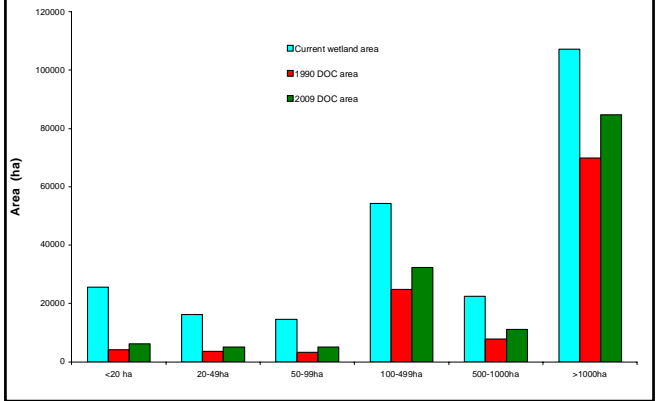




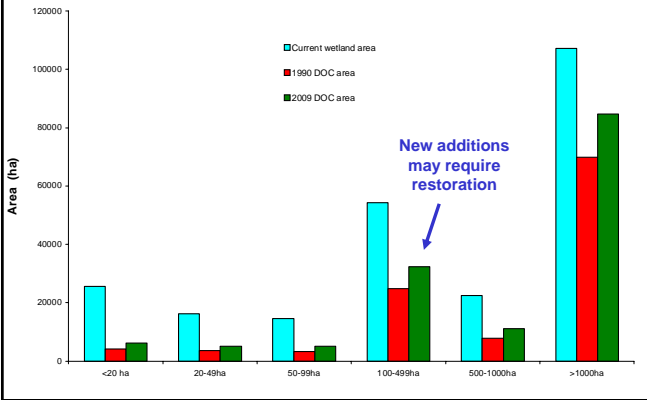
Need to consider other conservation land (e.g. QEII covenants)



### Is it time to invest in small wetlands?



### And which sites require restoration?



### Implications for wetland conservation

- Information can be used to explain the contribution of new reserves to protecting freshwater biodiversity
- Context for the Arawai Kakariki programme and other wetland conservation projects.
- Additions have often included under-represented wetlands
- Small wetlands – easiest gains?
- Are additions to the reserve estate in good condition – do they require restoration?
- Ultimately, management of catchment processes, particularly water quality and environmental flows for wetlands, may be more important than the reserve itself.



*Arawai Kākāriki*  
wetland restoration programme

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