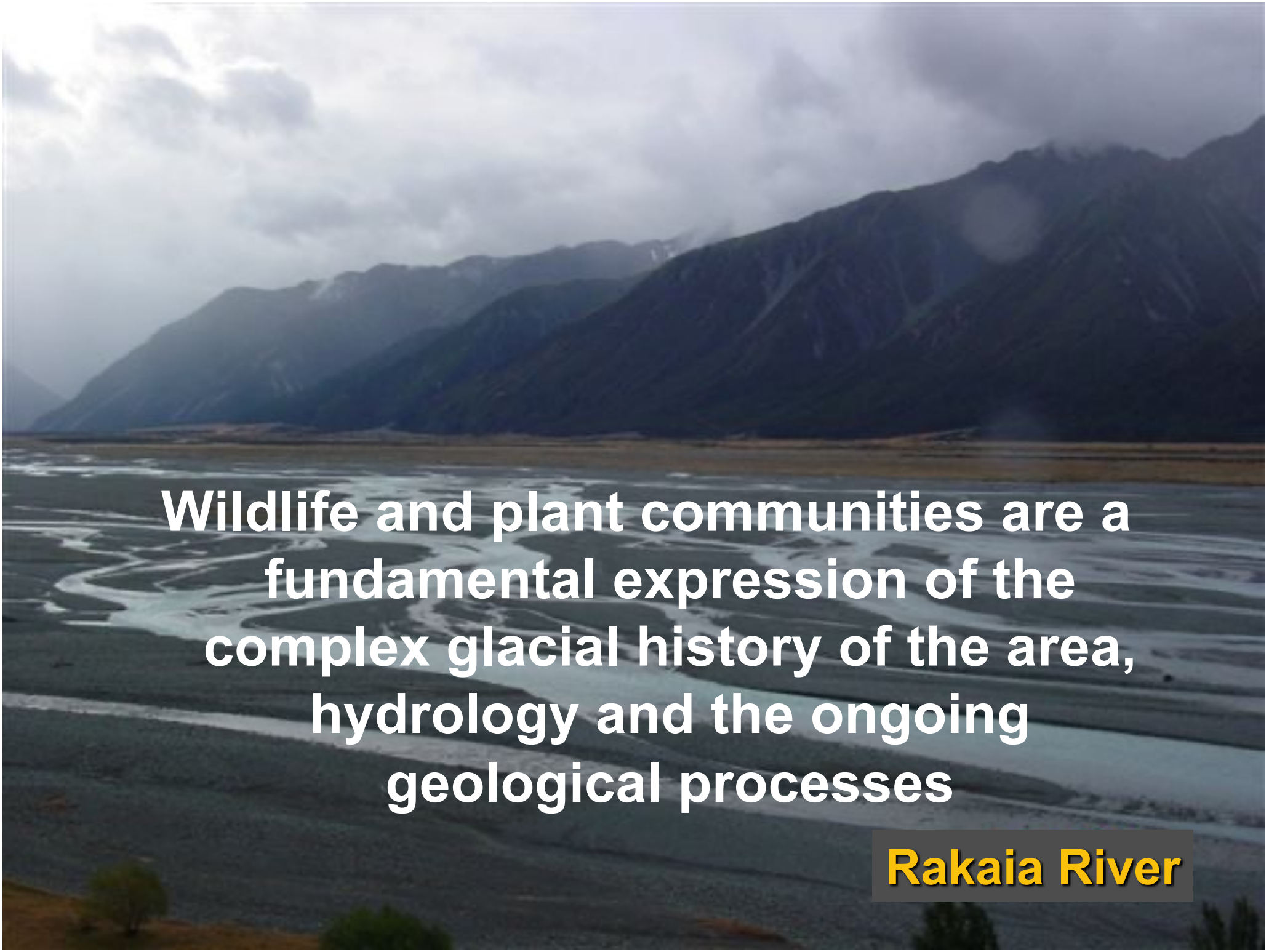
Of wrybill and terns:

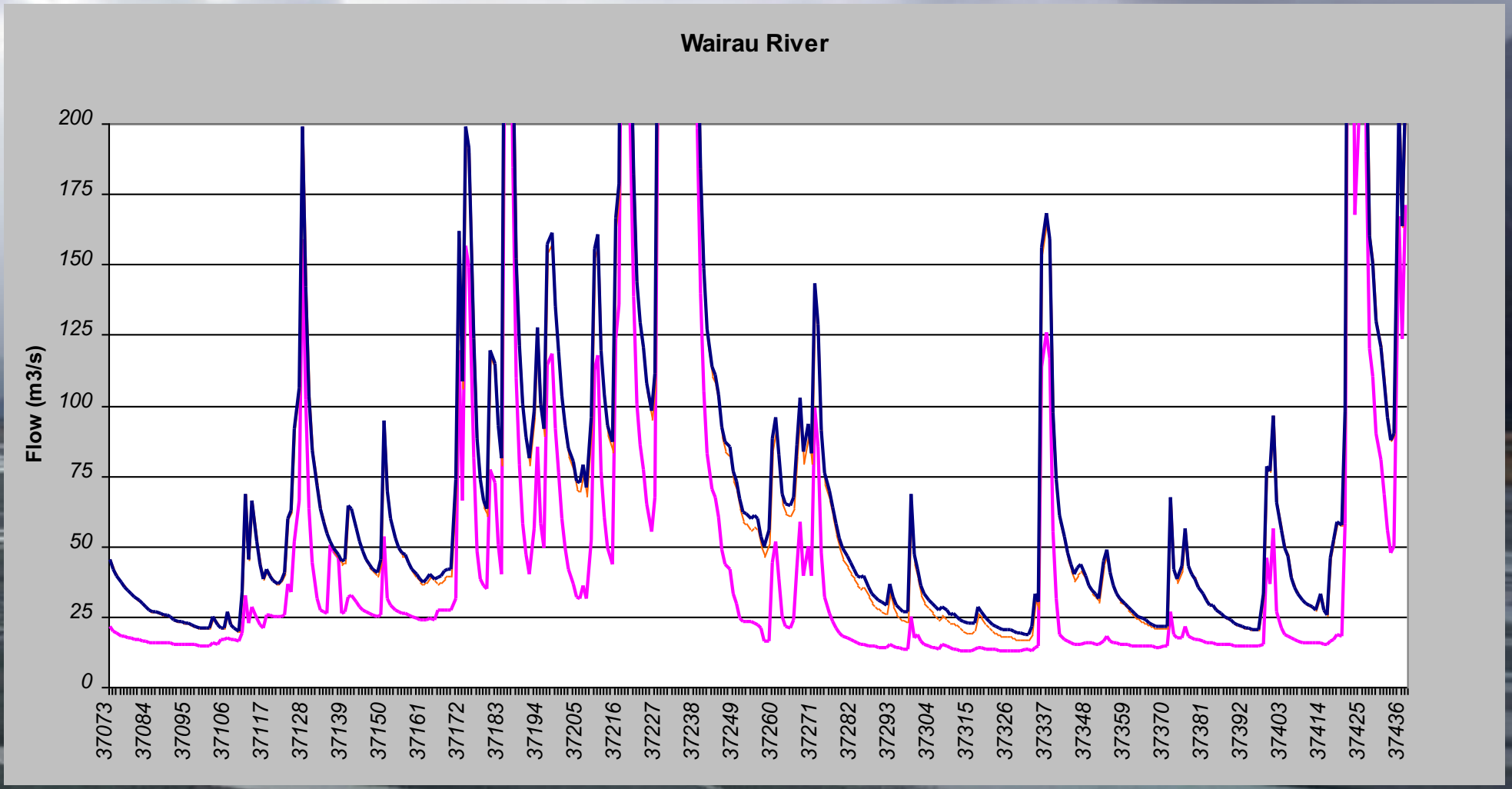
Braided river bird communities in New Zealand

Colin F.J. O'Donnell
Southern Regional Science Centre
Department of Conservation
Christchurch

Outline

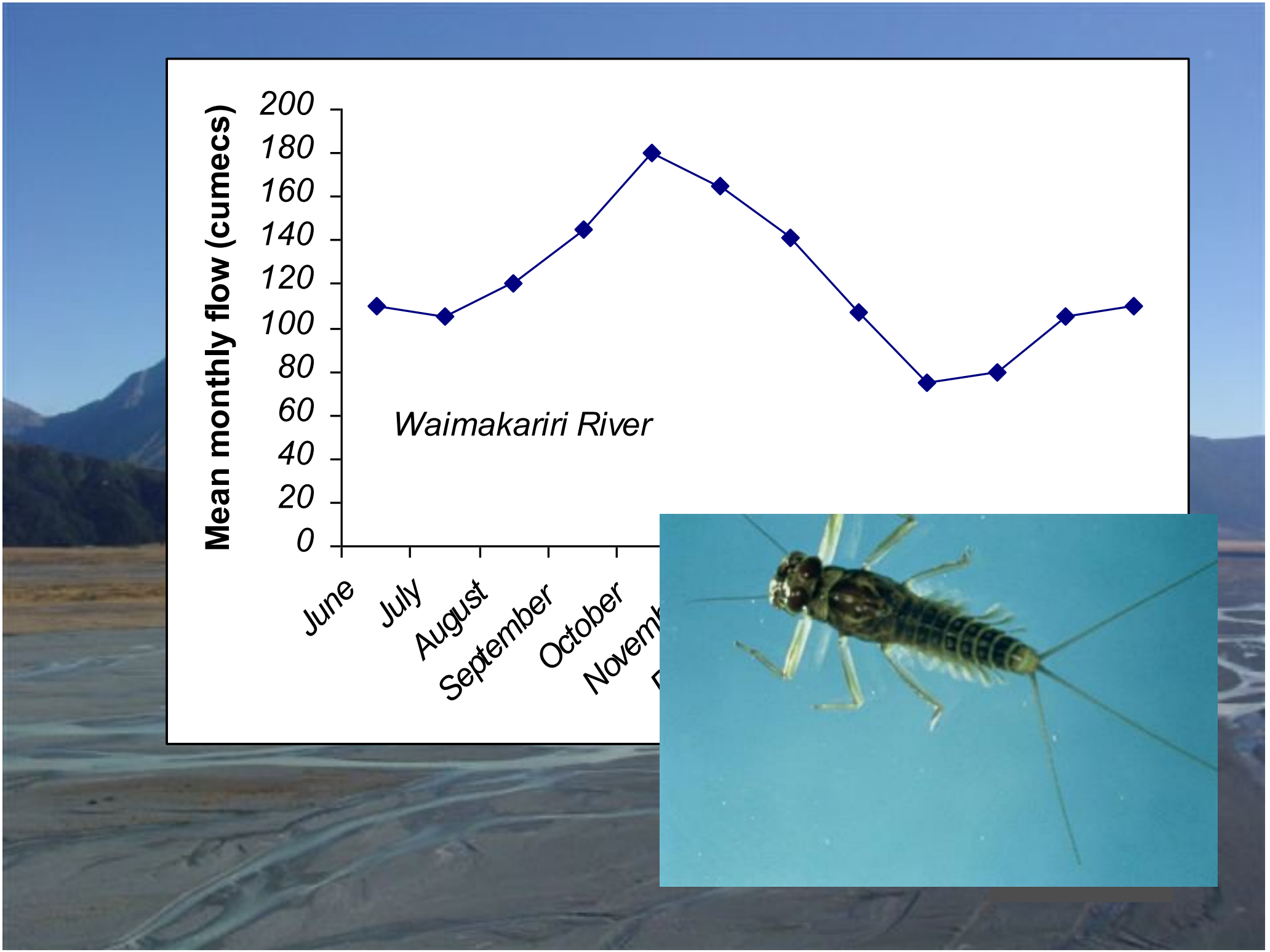
- What are braided rivers?
- Significance of braided rivers
- Why is the habitat so important?
- Threatened communities and species
- Threats and critical issues
- What needs to be done


Wildlife and plant communities are a fundamental expression of the complex glacial history of the area, hydrology and the ongoing geological processes
Rakaia River


Wairau River
Flow (m3/s)
200
175
150
125
100
75
50
25
0
37073
37084
37095
37106
37117
37128
37139
37150
37161
37172
37183
37194
37205
37216
37227
37238
37249
37260
37271
37282
37293
37304
37315
37326
37337
37348
37359
37370
37381
37392
37403
37414
37425
37436

- Multiple channels
- Flow instability
- High gradients,
- High levels of sediment supply and movement
- Constant channel movements
- Seasonally rich food supplies

These processes provide outstanding feeding and nesting habitat for wetland birds


Mean monthly flow (cumecs)
200
180
160
140
120
100
80
60
40
20
0
Waimakariri River
June
July
August
September
October

Migration from Northern Harbours


Most nesting is on clean shingle
South Island pied oystercatcher

Braided rivers: Biodiversity values

>250,000 ha

163 river systems

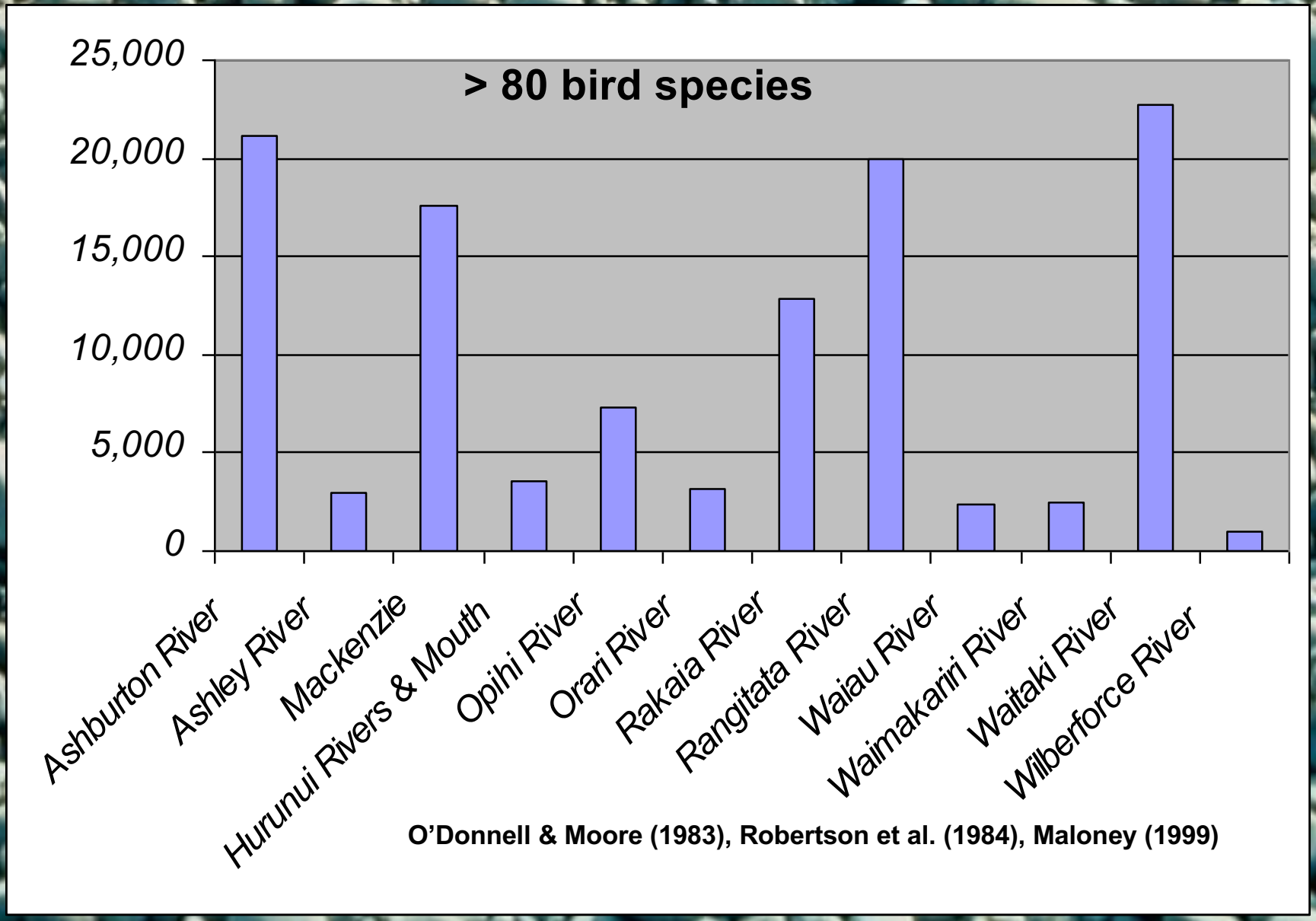
11 Conservancies

>80 wetland bird species

>50 threatened species

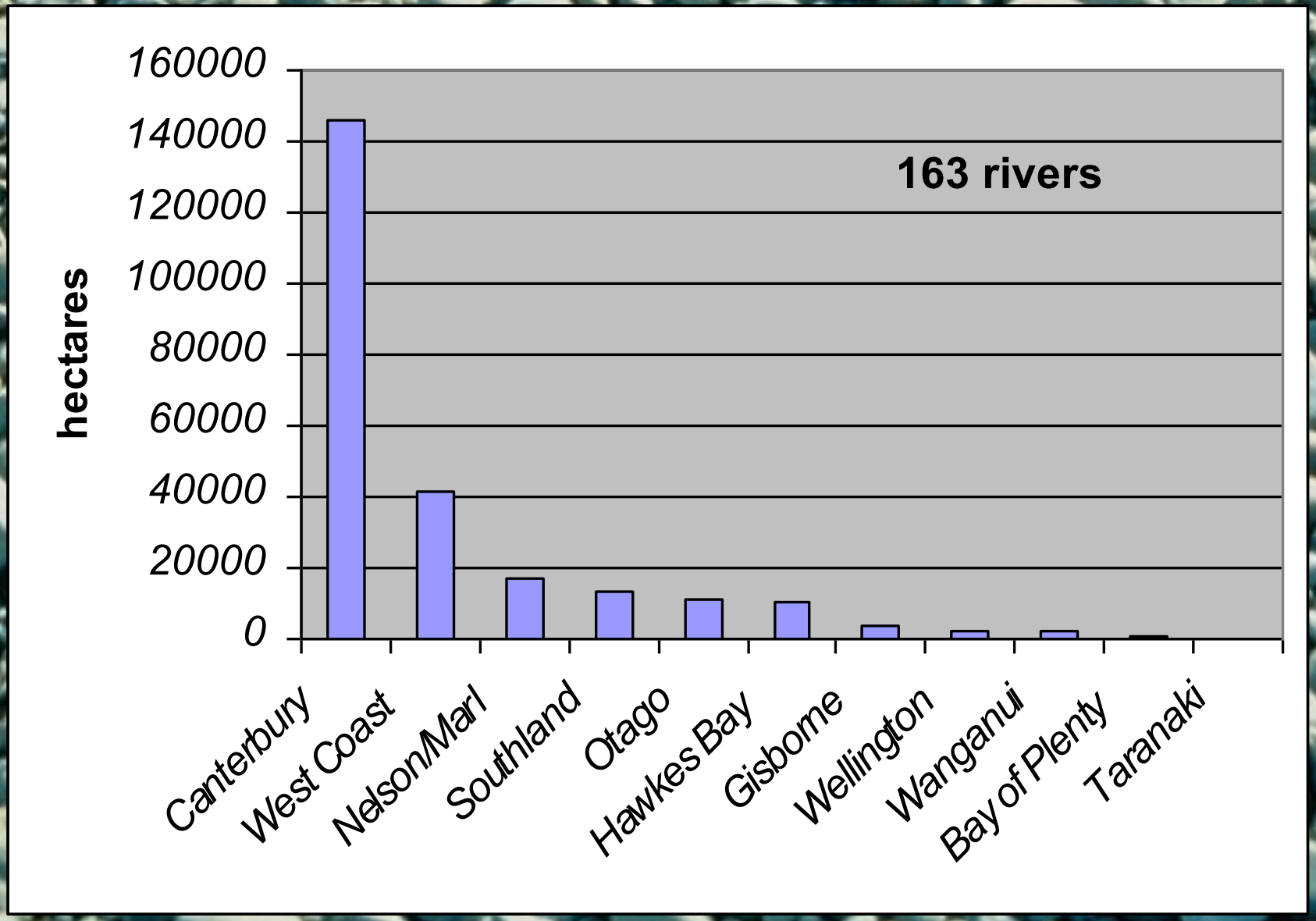
Threats are immense

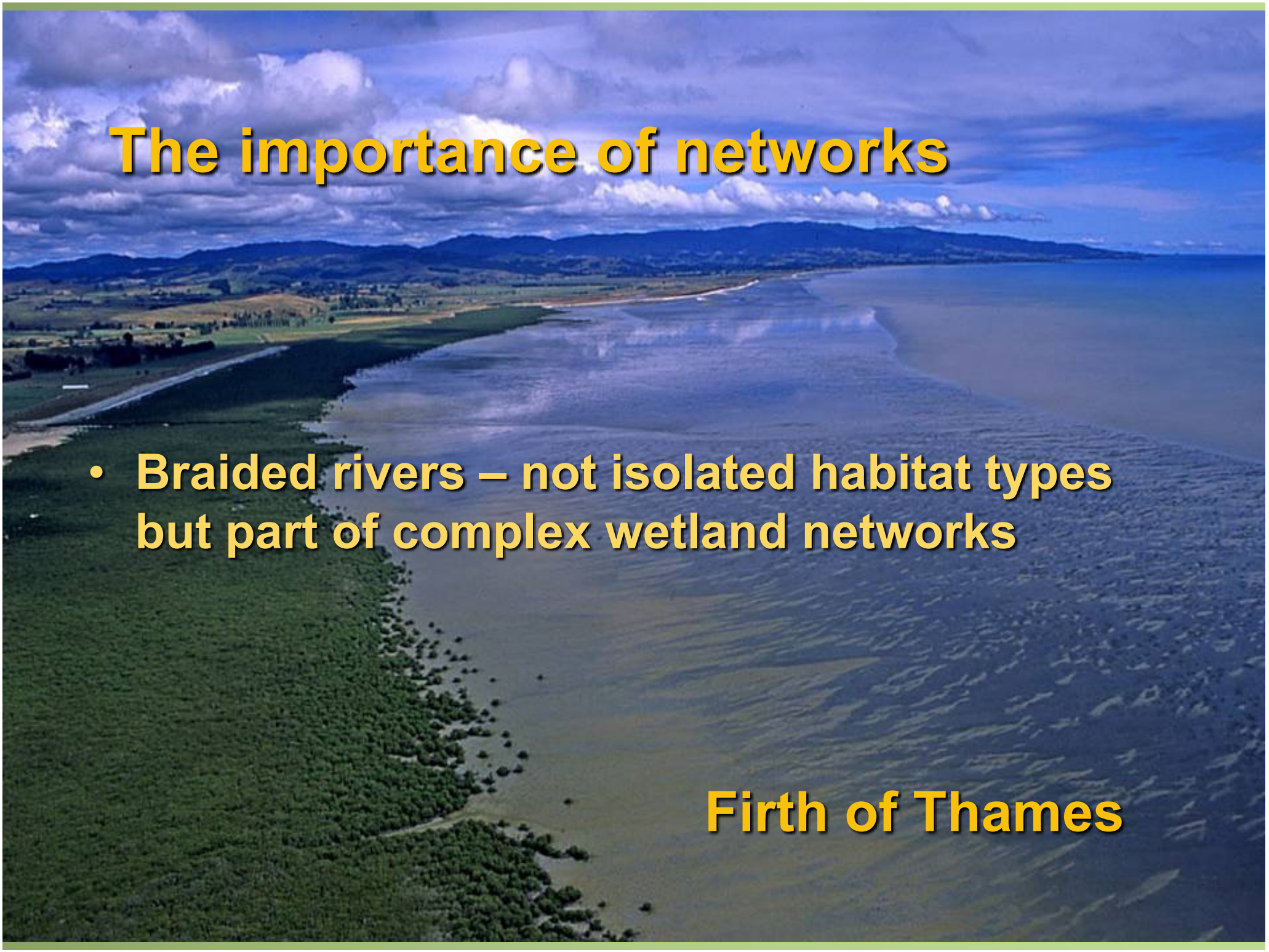
Number of wetland birds from index counts on major rivers



O'Donnell & Moore (1983), Robertson et al. (1984), Maloney (1999)

Distribution of braided rivers nationally




The importance of networks
• Braided rivers – not isolated habitat types but part of complex wetland networks
Firth of Thames

Black cormorant - an open water diver

All photos – DOC Slide Library


Habitat richness provides for species with diverse requirements
Black stilts – deep water waders


Typical foraging habitat for wrybill
– shallow riffles


Black-fronted tern feeding over major channel on Wairau River

Dabbling waterfowl – typical of ponds and backwaters

NZ shoveler

Terrestrial foraging habitats


Blue duck – torrent specialist now confined to the upper reaches of rivers

Swamp specialists associated with riparian wetlands


New Zealand pipit – riparian wetland species

Other species

Threatened plants

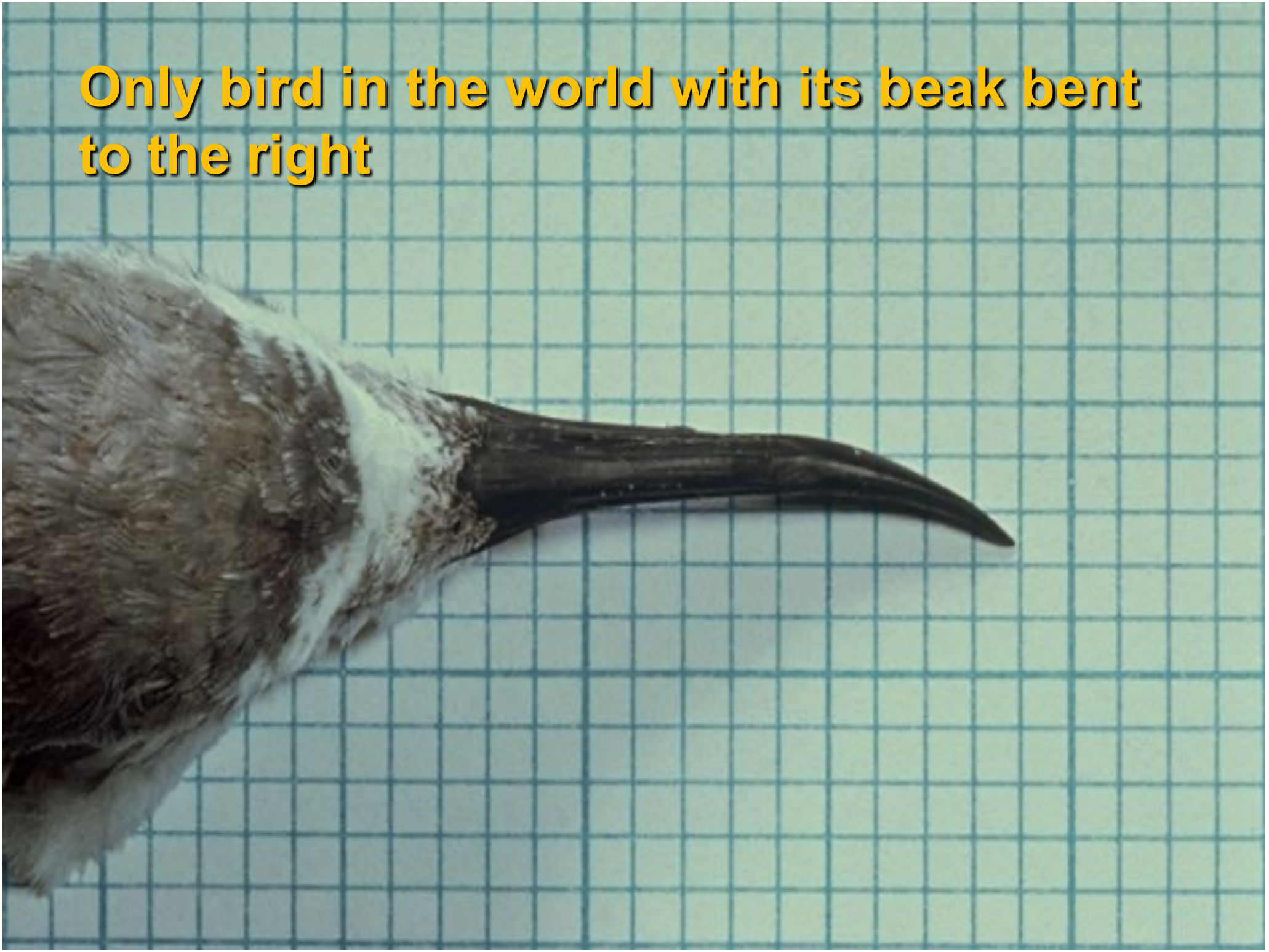
Edwards Stream – Scree Skink habitat

What are the important habitat types on rivers?

- Each species has a different habitat use profile – with different needs
- Terrestrial to aquatic continuums
- Different requirements for nesting and feeding
- Need to protect the full range of habitats on a river

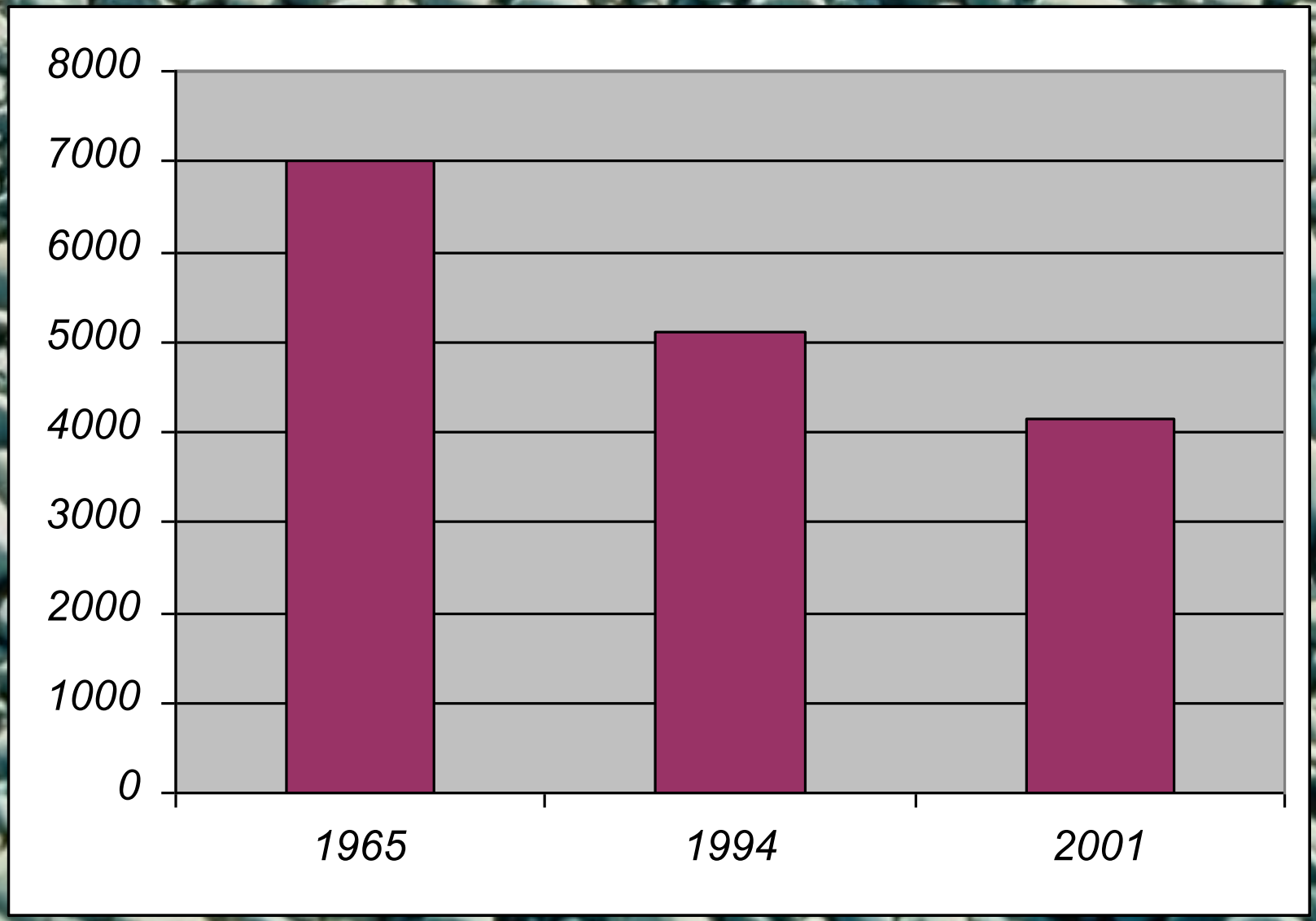
Threatened species


Wrybill Vulnerable
Ngutuparore


Only bird in the world with its beak bent to the right

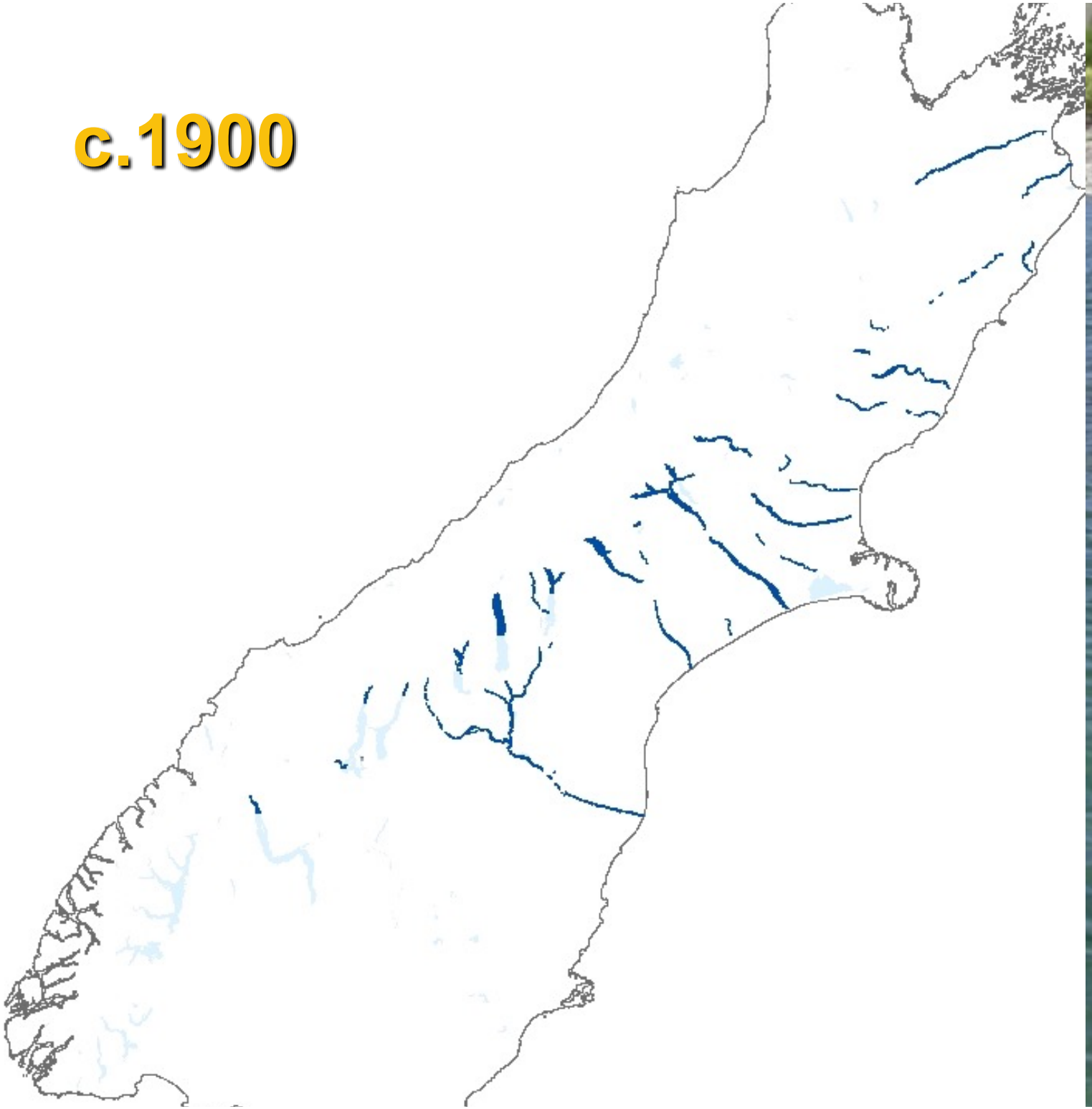

Wrybill – only 22 breeding rivers
Rangitata & Rakaia –
approximately 80 % of breeding population
Upper Rangitata River

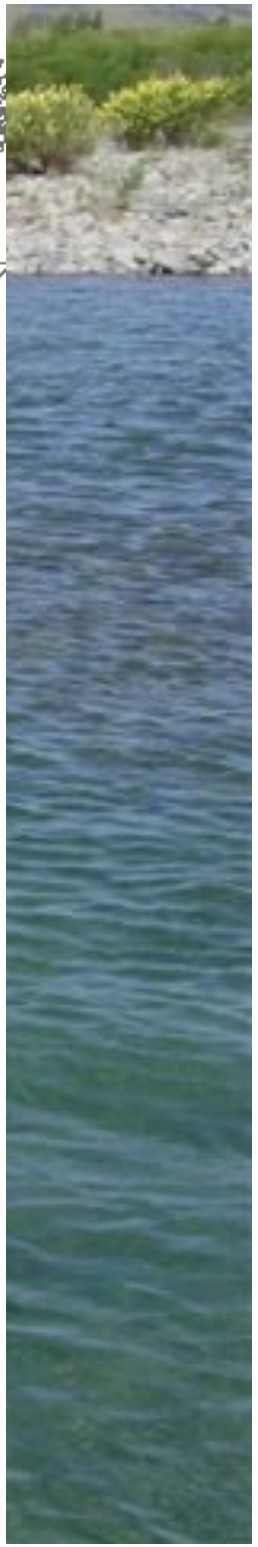
Trends in wrybill numbers

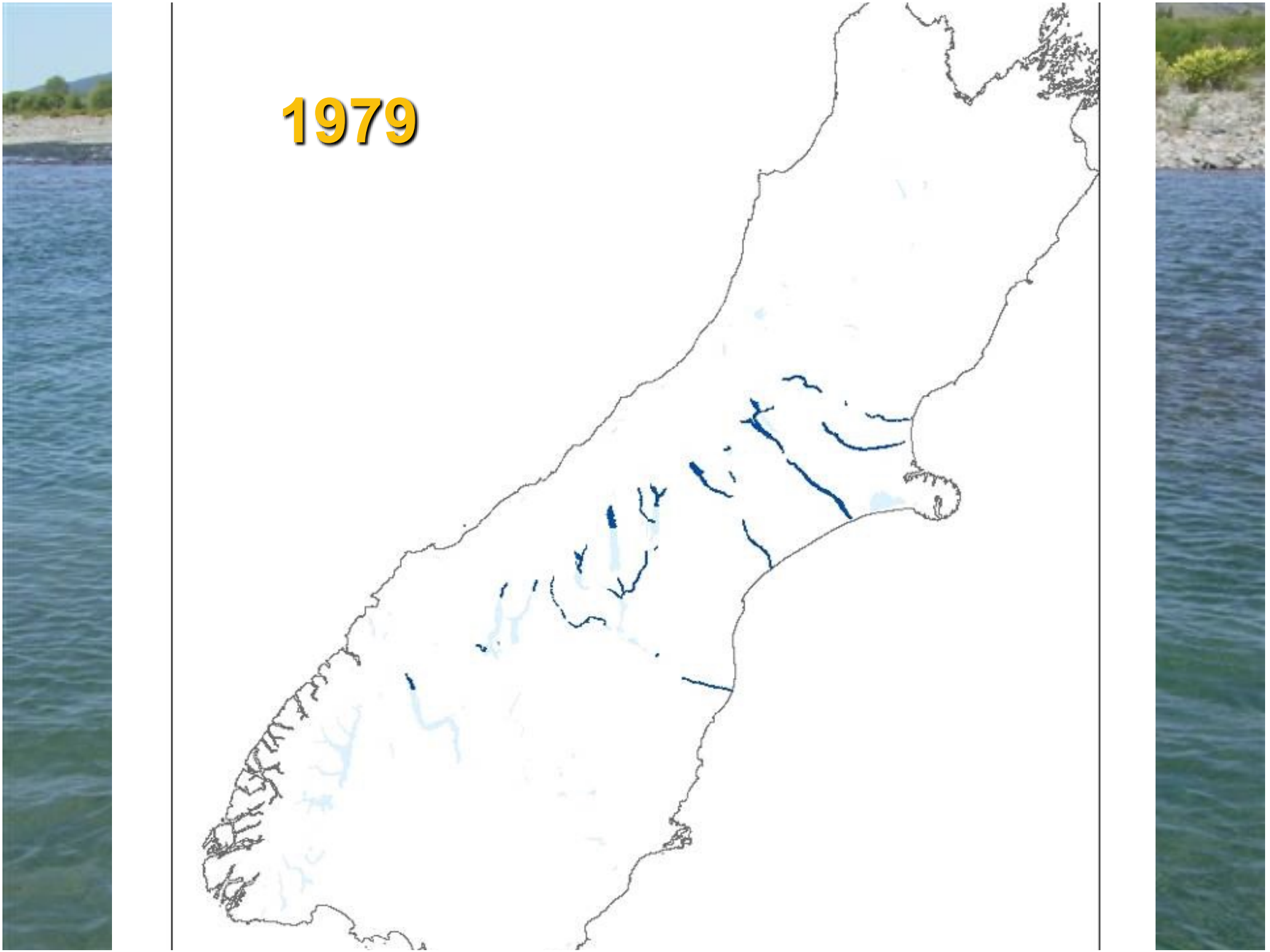


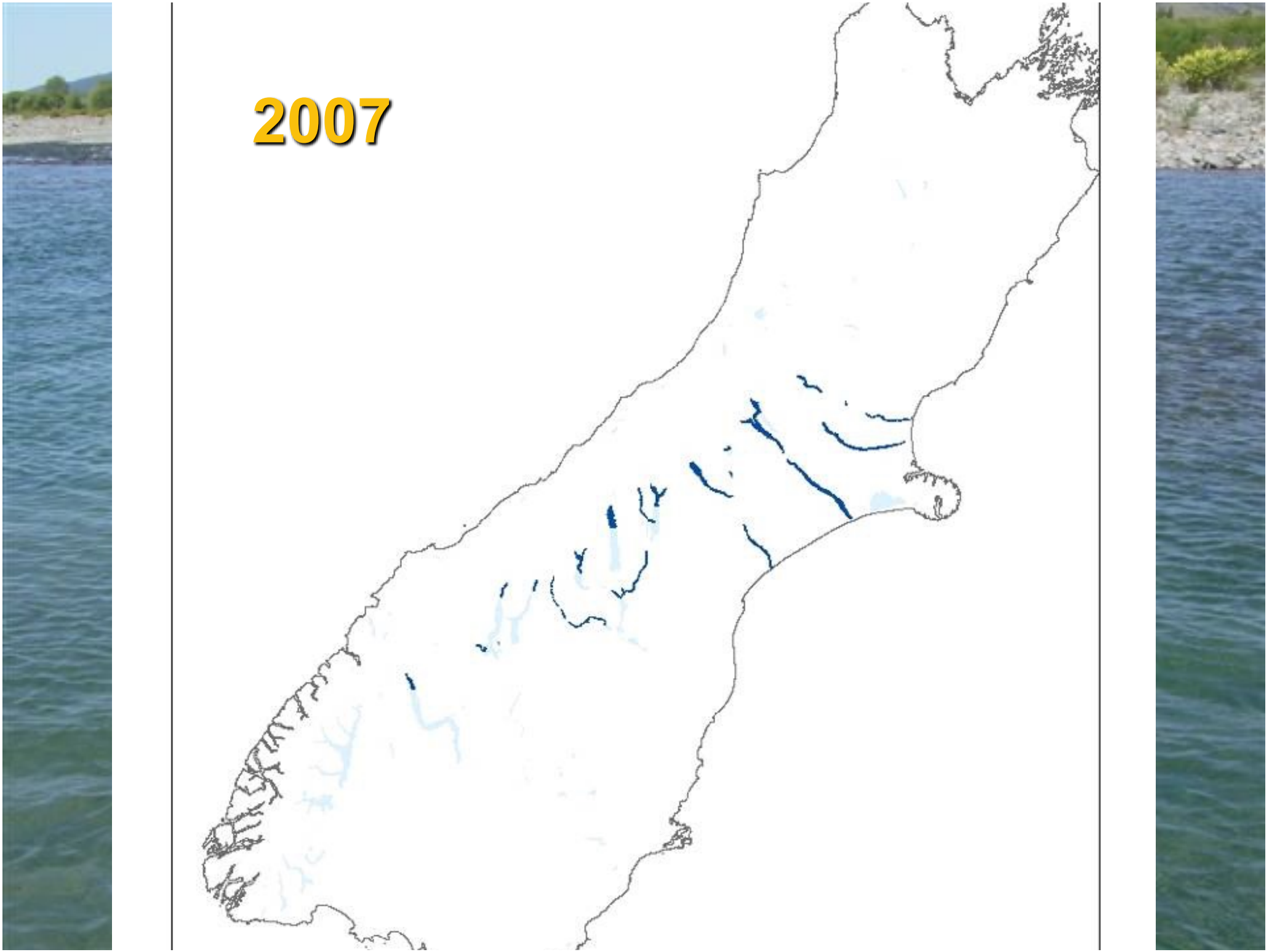
Hay (1979), Davies (1997), Riegen & Dowding (2001)

c.1900





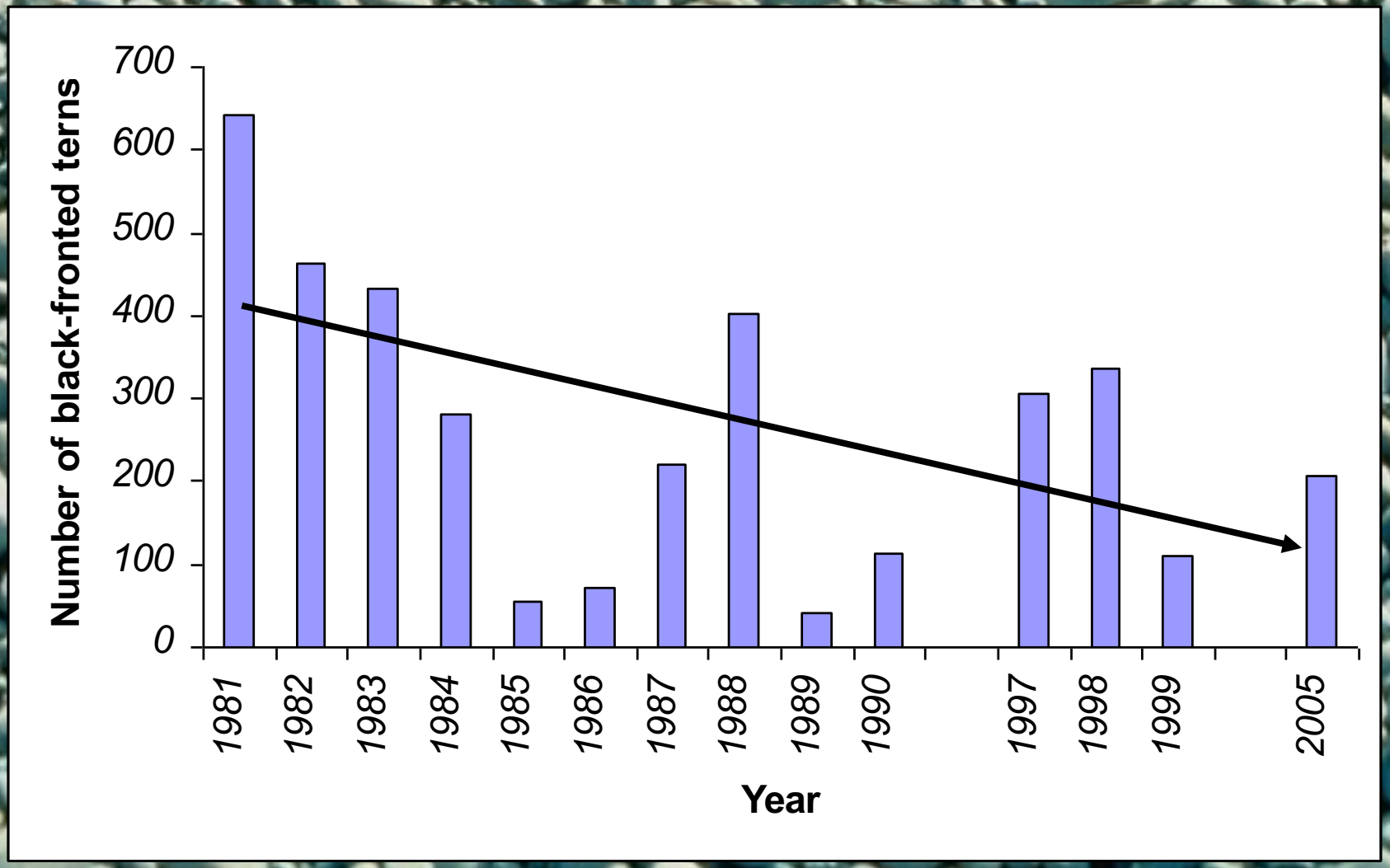

1979


2007


Black-fronted tern Endangered
Tarapiroe
6000-10000 birds (Keedwell 2002)

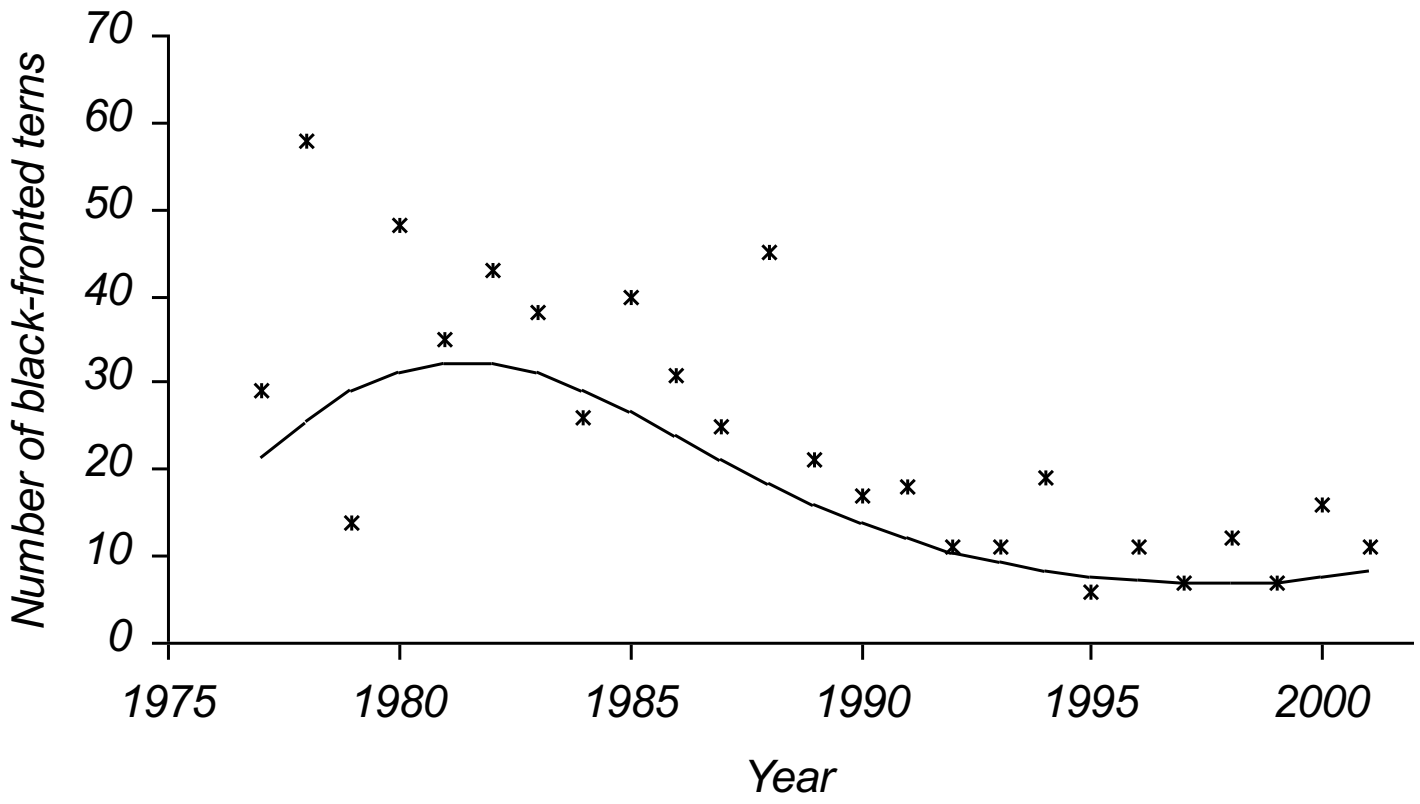

76% of nests preyed on by a cat in one visit
to a colony (Rangitata 2006)

Trends in black-fronted tern numbers – Ashburton River 1981-2005



O'Donnell (1985) & Unpublished

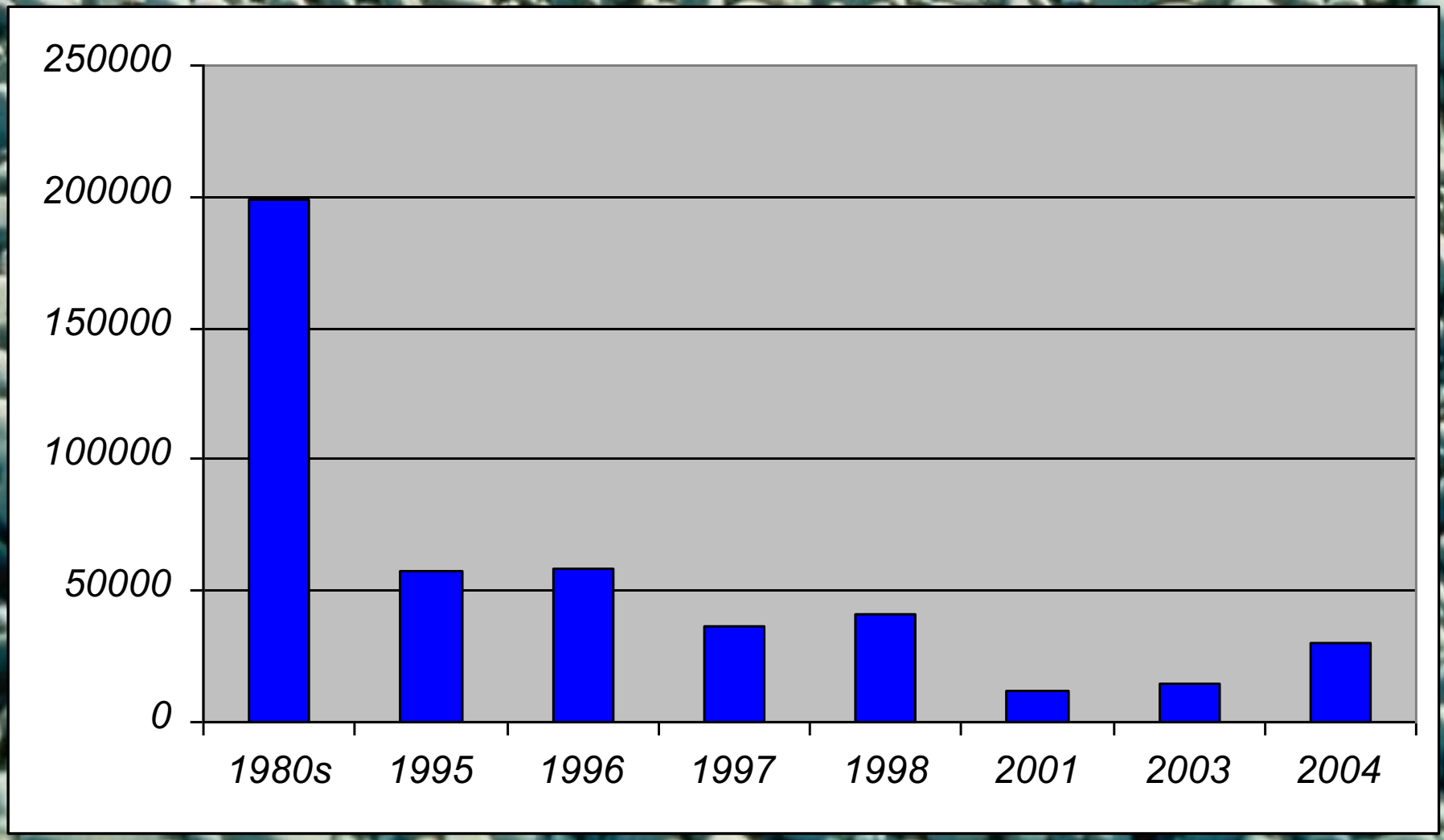
Winter flock counts – Bay of Plenty



Latham (1981), Keedwell (2002)


Black-billed gull
Endangered

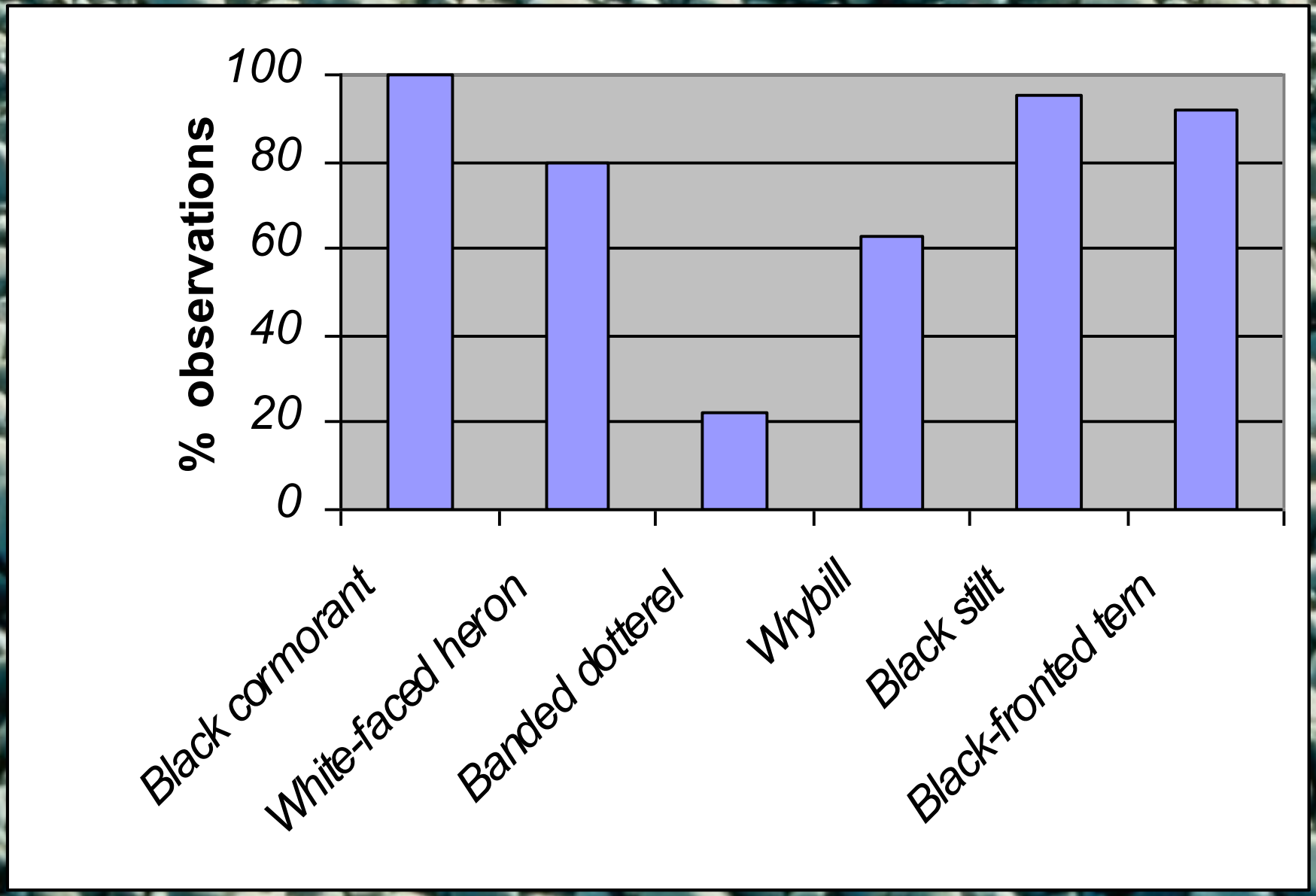
Numbers of black-billed gulls - Oreti, Aparima & Mataura Rivers, Southland



R. McClellan, pers. comm.

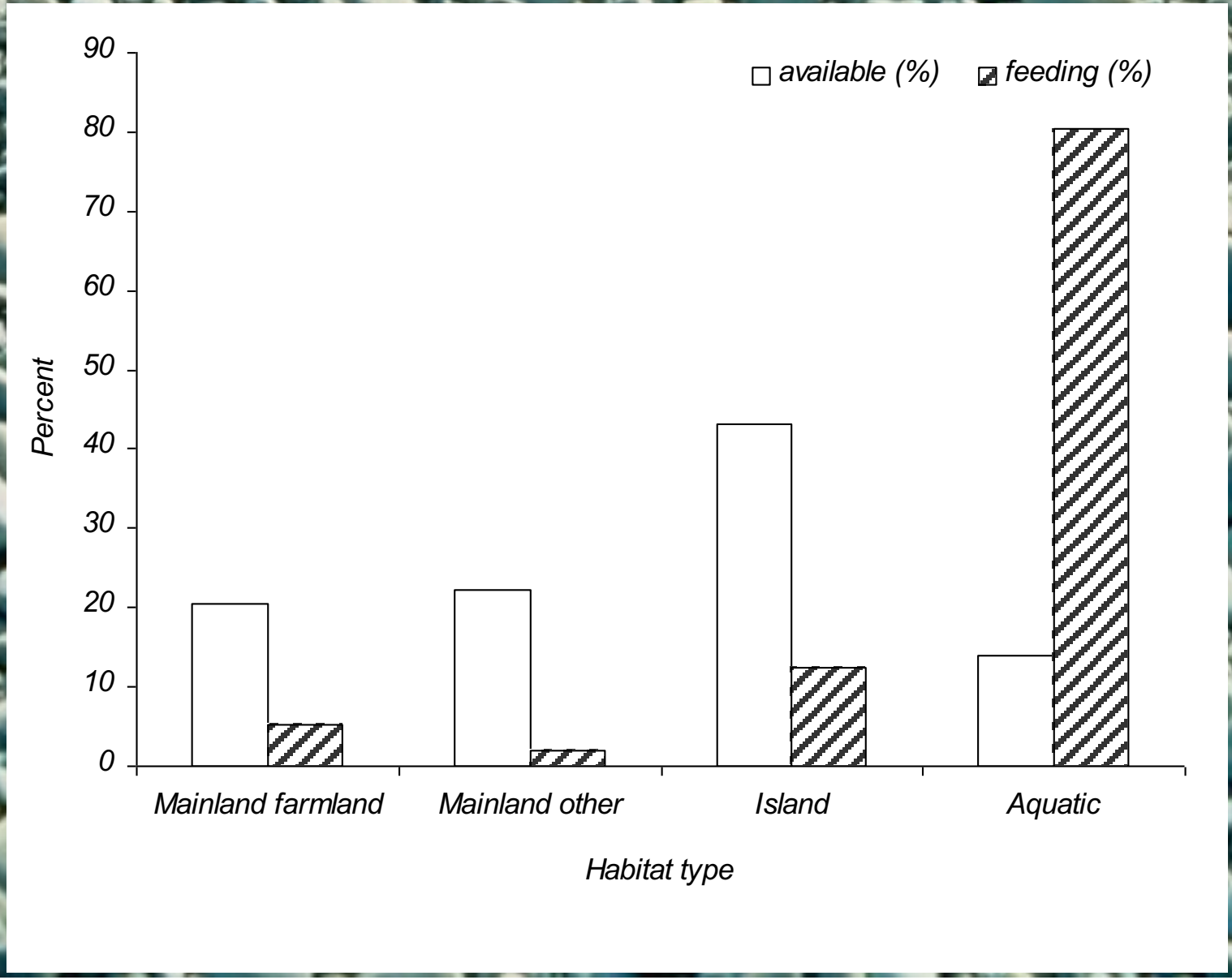
Threats

Dependence on water for feeding



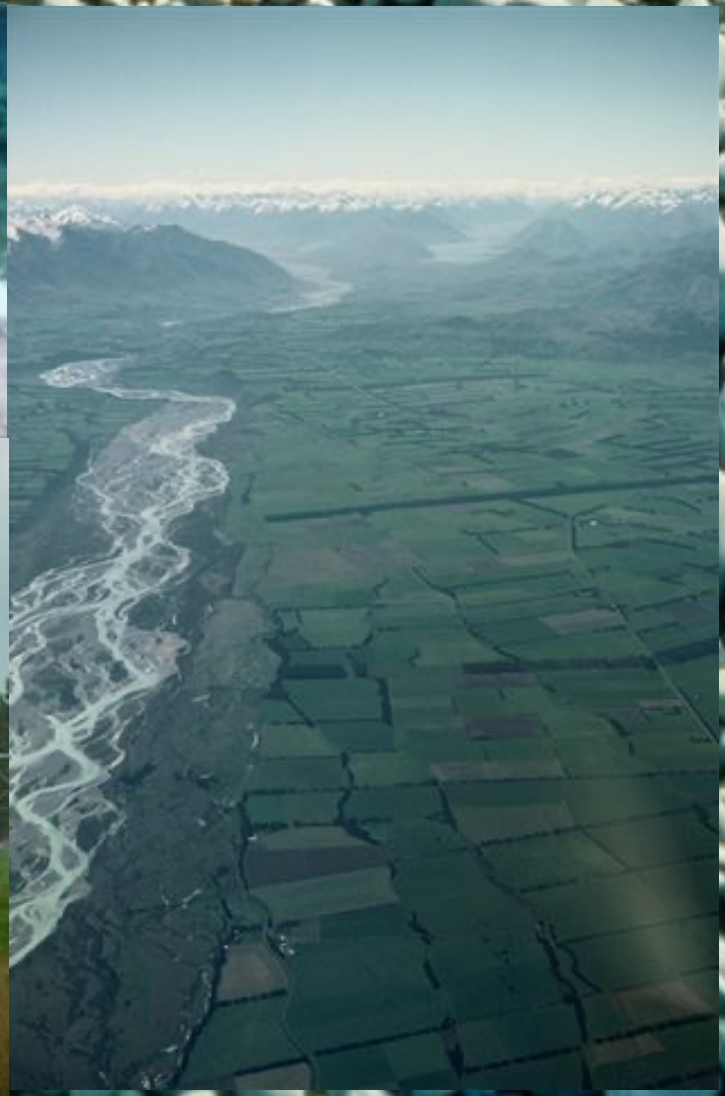
Robertson et al. (1983) – Ahuriri River

Terns selected aquatic habitats and avoided farmland

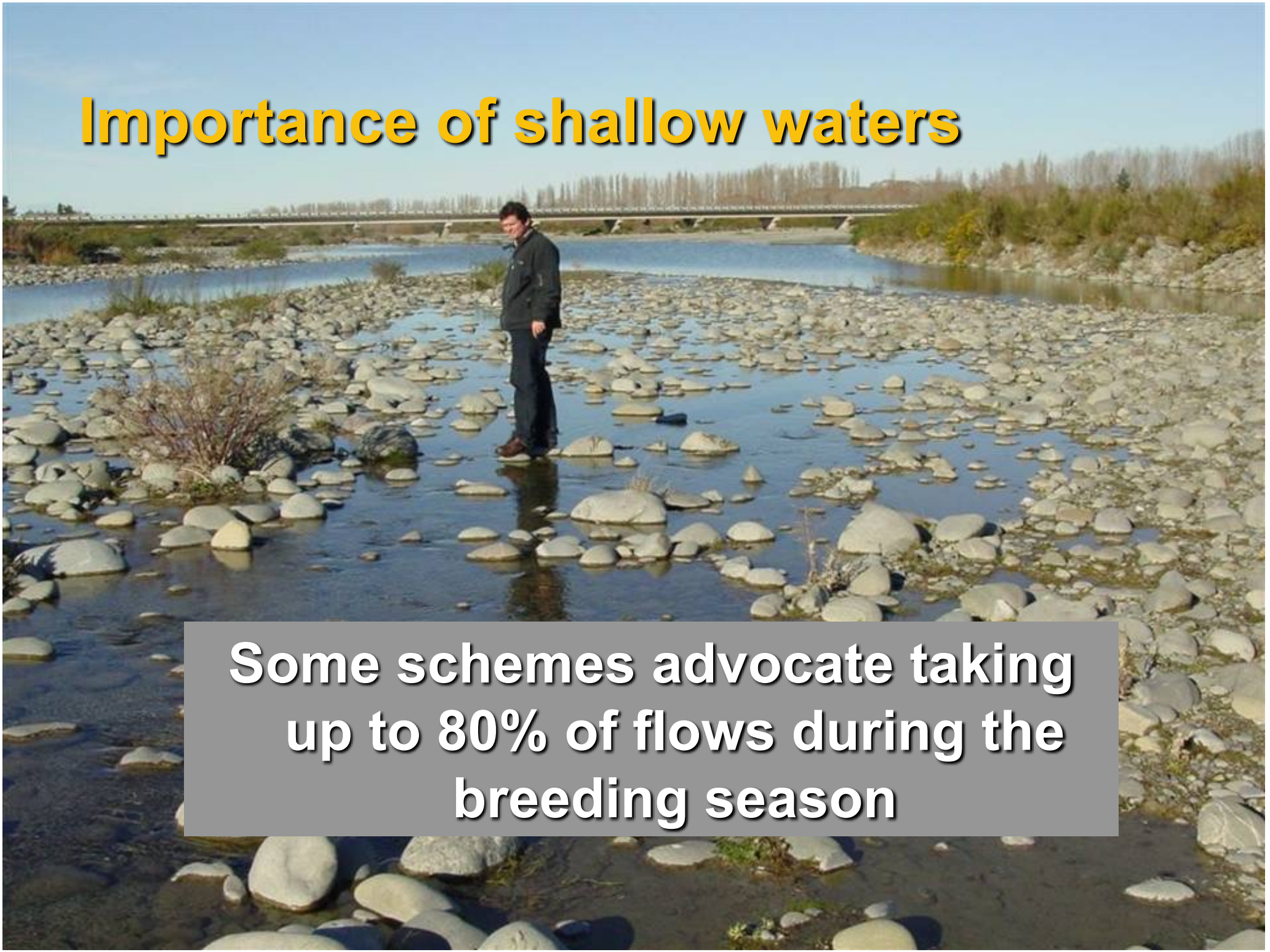


Loss of water: Increased demand for hydro-electric power

Loss of water: Increased demand for irrigation water

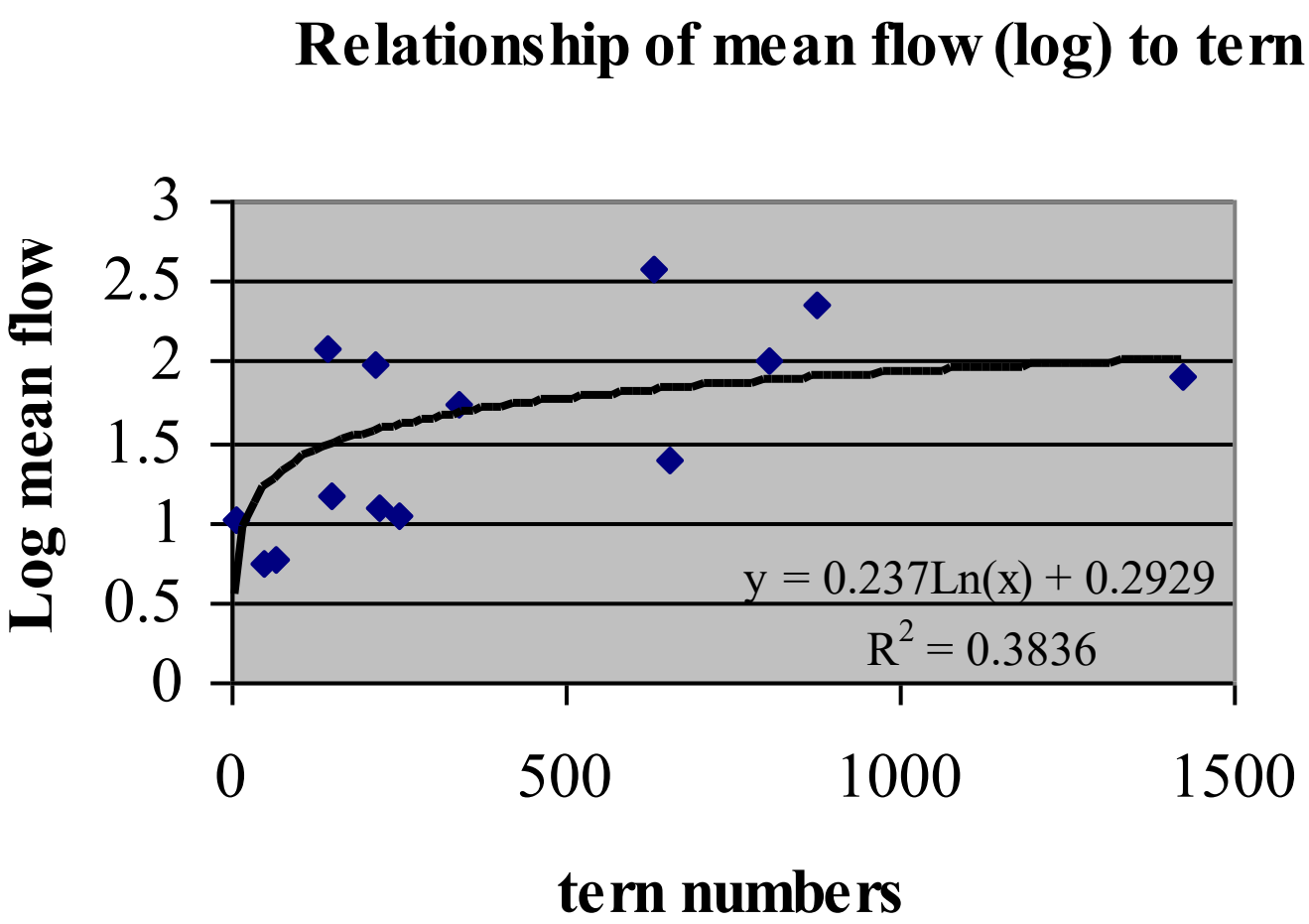


Importance of shallow waters



Some schemes advocate taking up to 80% of flows during the breeding season

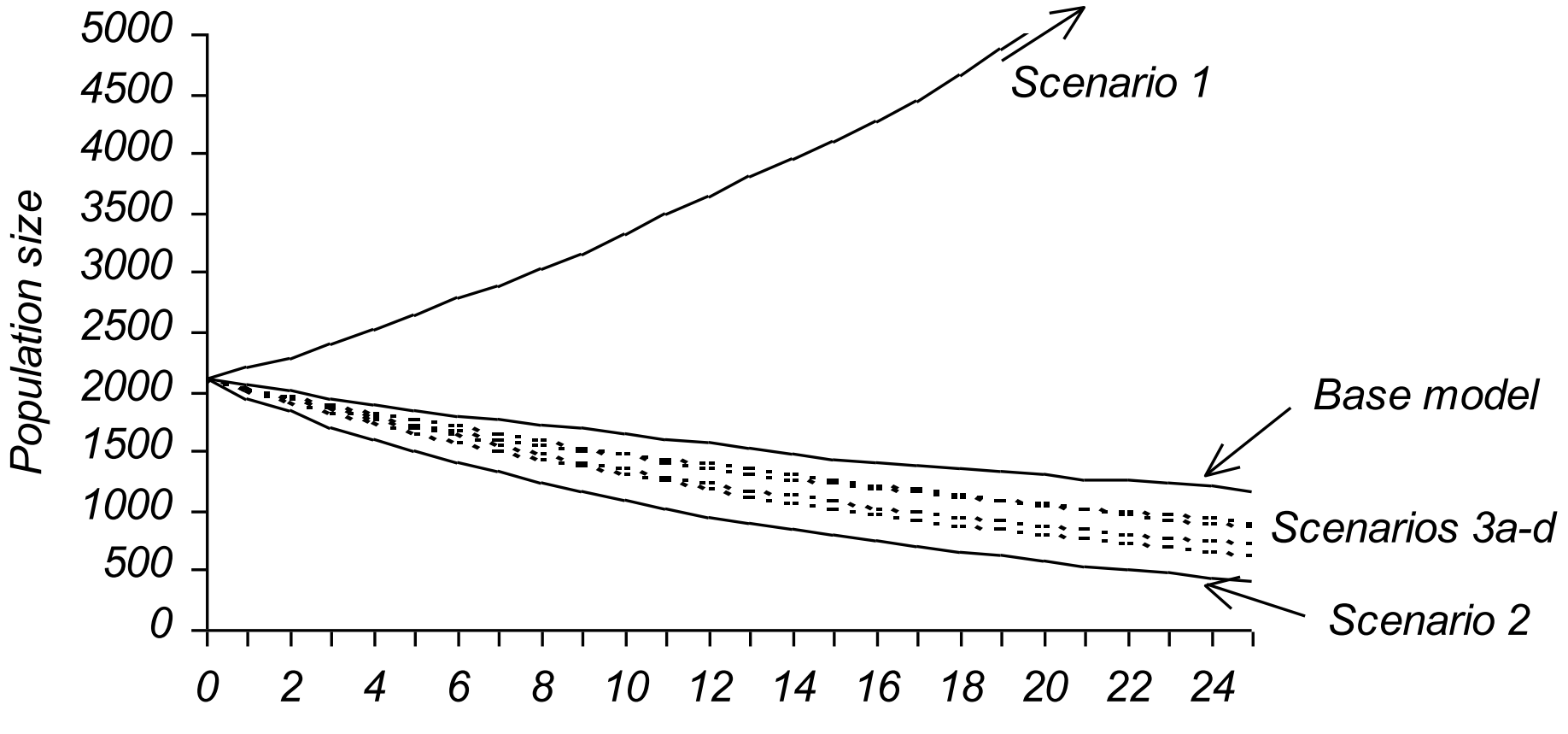
Terns survive in highest numbers on rivers with high flows



Predation

7-10-96 24H
3:15:34

Population modelling indicates most endemic species are steadily declining towards extinction

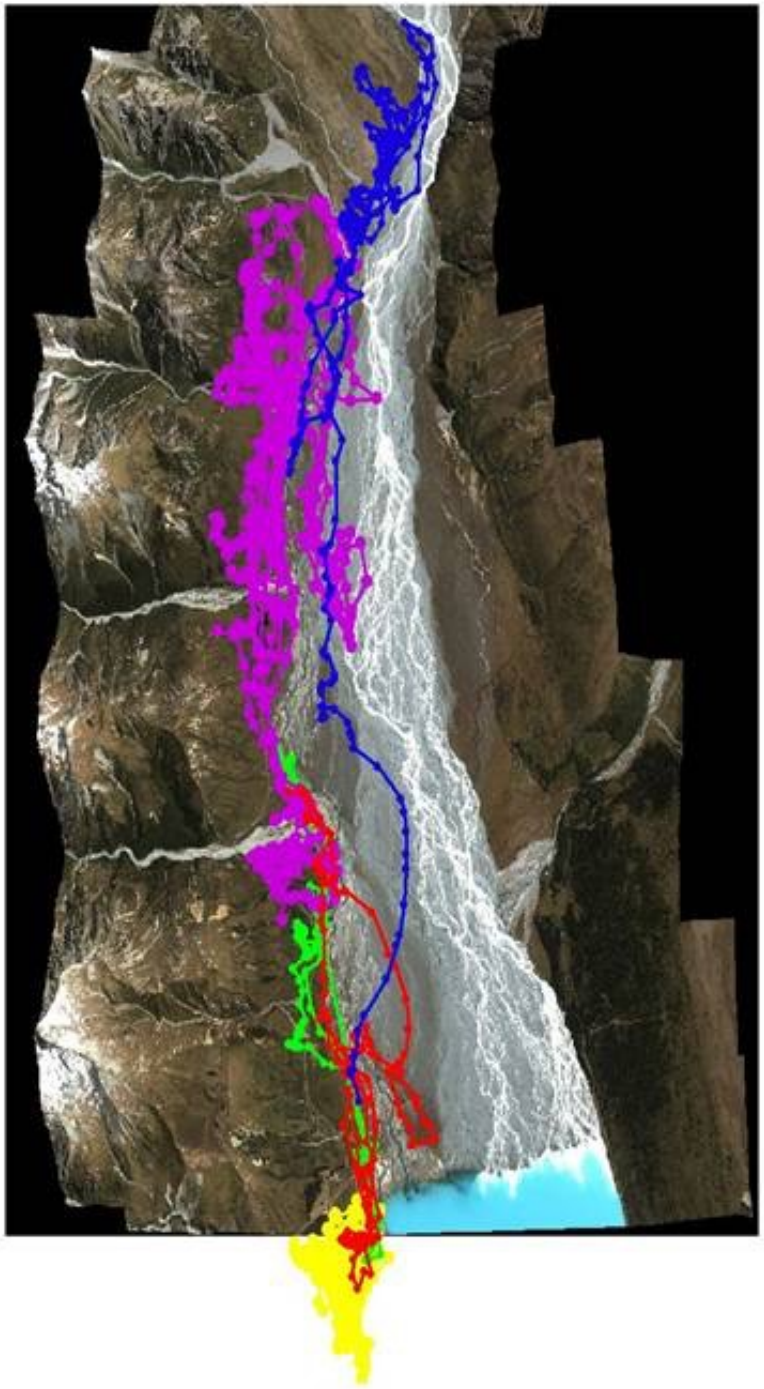


Black-fronted tern

Keedwell (2004)

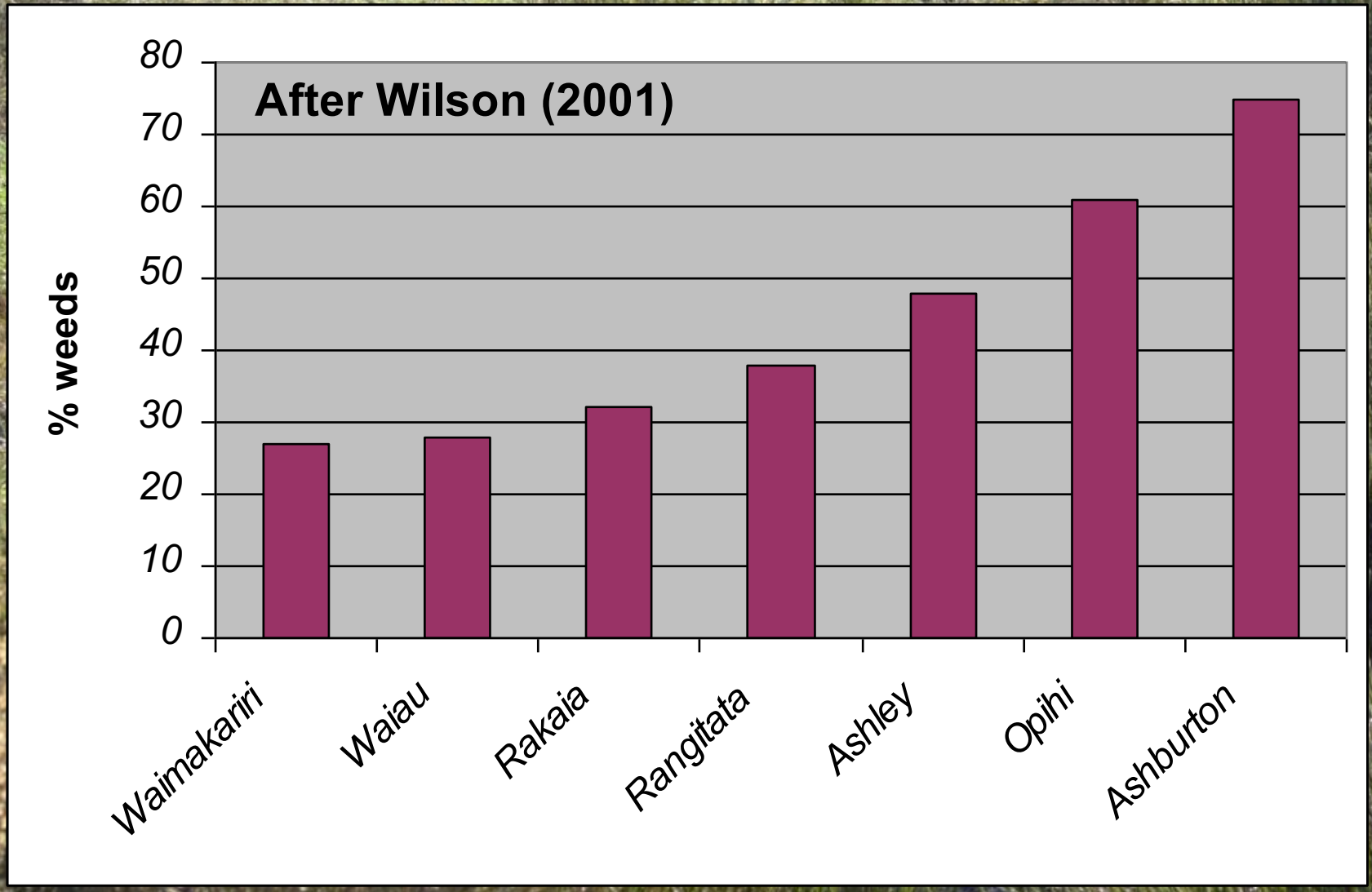
The ‘moat’ effect – islands separated from the mainland by large flows appear to limit predation

Cats on the Tasman River generally avoid crossing larger river channels



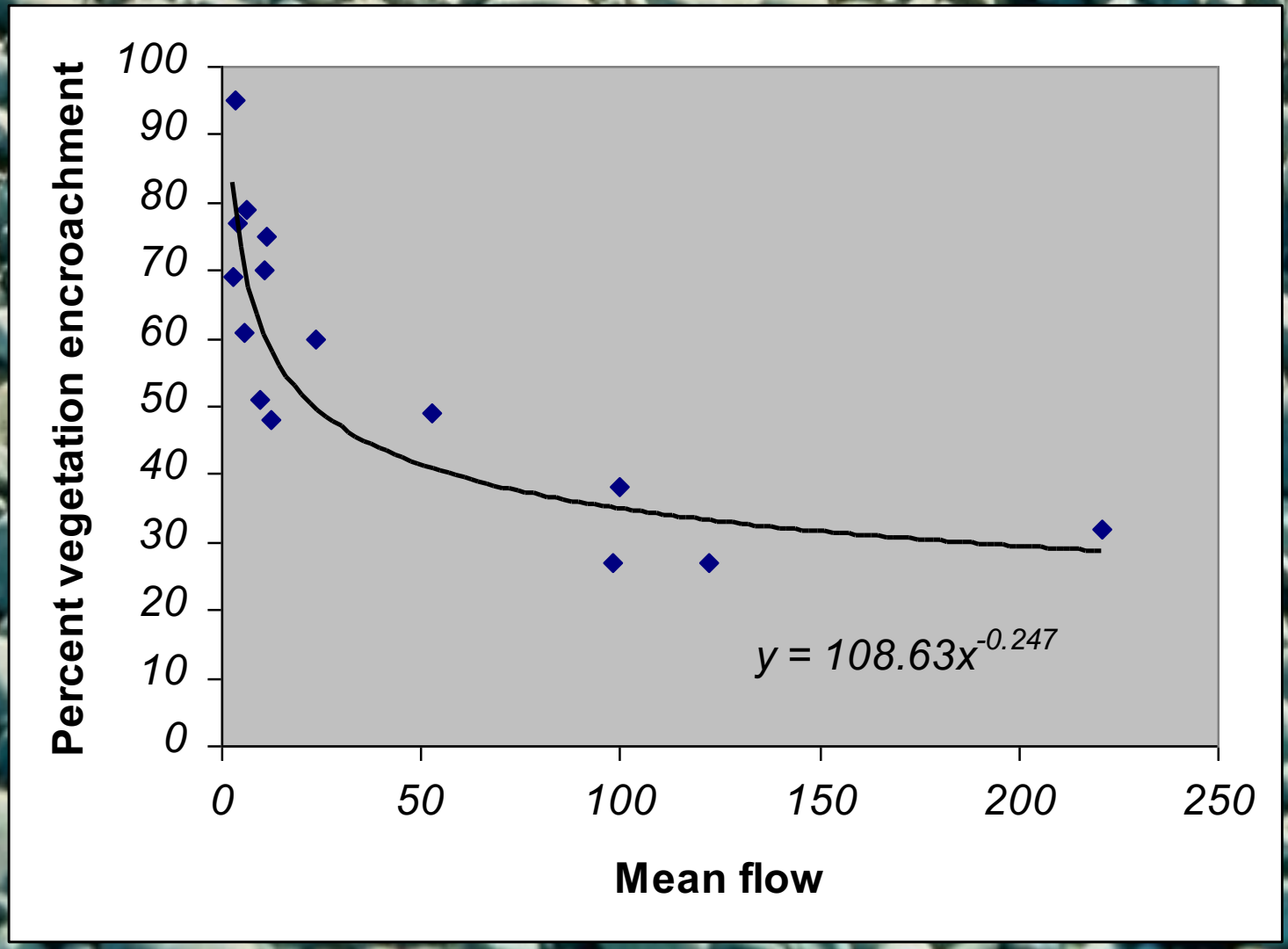

Weed invasion can result in complete loss of nesting habitat
Rangitata River

Proportions of major rivers with weed encroachment



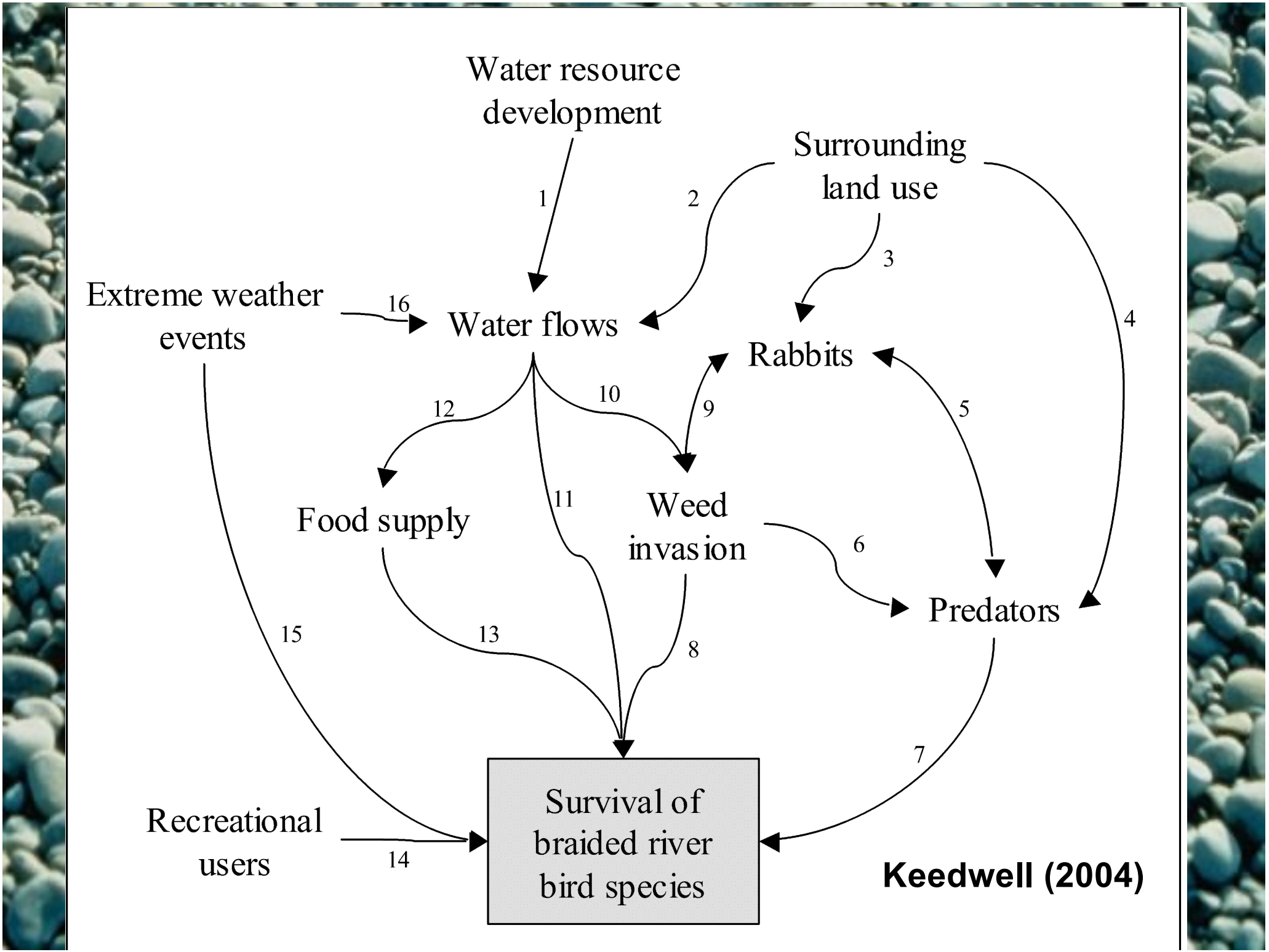

Interaction with loss of water: Increased channel stabilisation and loss of access to invertebrates

Weed encroachment increases with decrease in mean flow (cumecs)




Ashburton River - 1982


Ashburton River - 2006


Water resource development
Surrounding land use
Extreme weather events
Water flows
Rabbits
Food supply
Weed invasion
Predators
Recreational users
Survival of braided river bird species
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Keedwell (2004)

What do we need to do?

- **Protect a representative range of rivers**
  - Braided rivers are not represented in our reserve network (though the waters of some are now protected with Conservation Orders)
- **Most riverbeds are classed as "unoccupied crown land"**
- **Ensure adequate "environmental flows" remain in rivers**

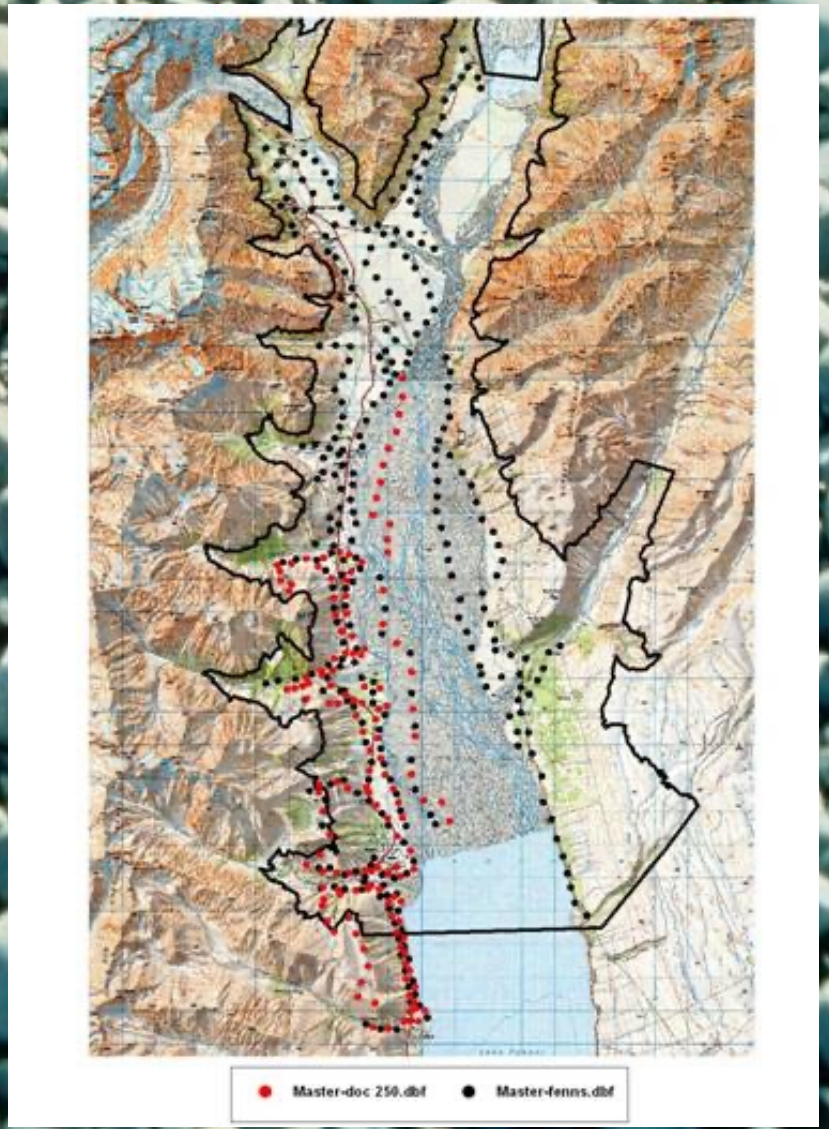
Research Needs

- **Need to understand interactions among main threats**
  - Predation
  - Weed encroachment
  - Flow reduction
- **And be able to manage these threats effectively**

What do we need to do?

Protect more threatened communities:

- Develop protocols for sustainable use of water on rivers
- Predator control
- Weed control



Education


This riverbed is home to ground nesting birds
from August to January
Black-fronted tern
THREATENED
Black stilt
ENDANGERED
Black-billed gull
Wrybill
THREATENED
Banded dotterel
South Island
pied oystercatcher
During these months, please...
- Drive only on the marked track
- Keep dogs on a lead
- Move away from alarmed birds
Thank you
DEPARTMENT OF CONSERVATION
TE PAPA ATAWHAI

Manage 4WD vehicles

Black-fronted tern chick
crushed by vehicle

Set up more river care groups

Need to protect both feeding and breeding habitat