The birdlife of Te Waihora Lake Ellesmere – verification of the PLOVER lake management model

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A REMINDER:

The total number of species recorded at Te Waihora/Lake Ellesmere is 167 species – given a total number of extant bird species in New Zealand of 324 recorded in 1996 then at least 50% have been recorded from the lake. This proportion is far more than any other site in New Zealand

(Source: Sagar et al. 2004: 38)

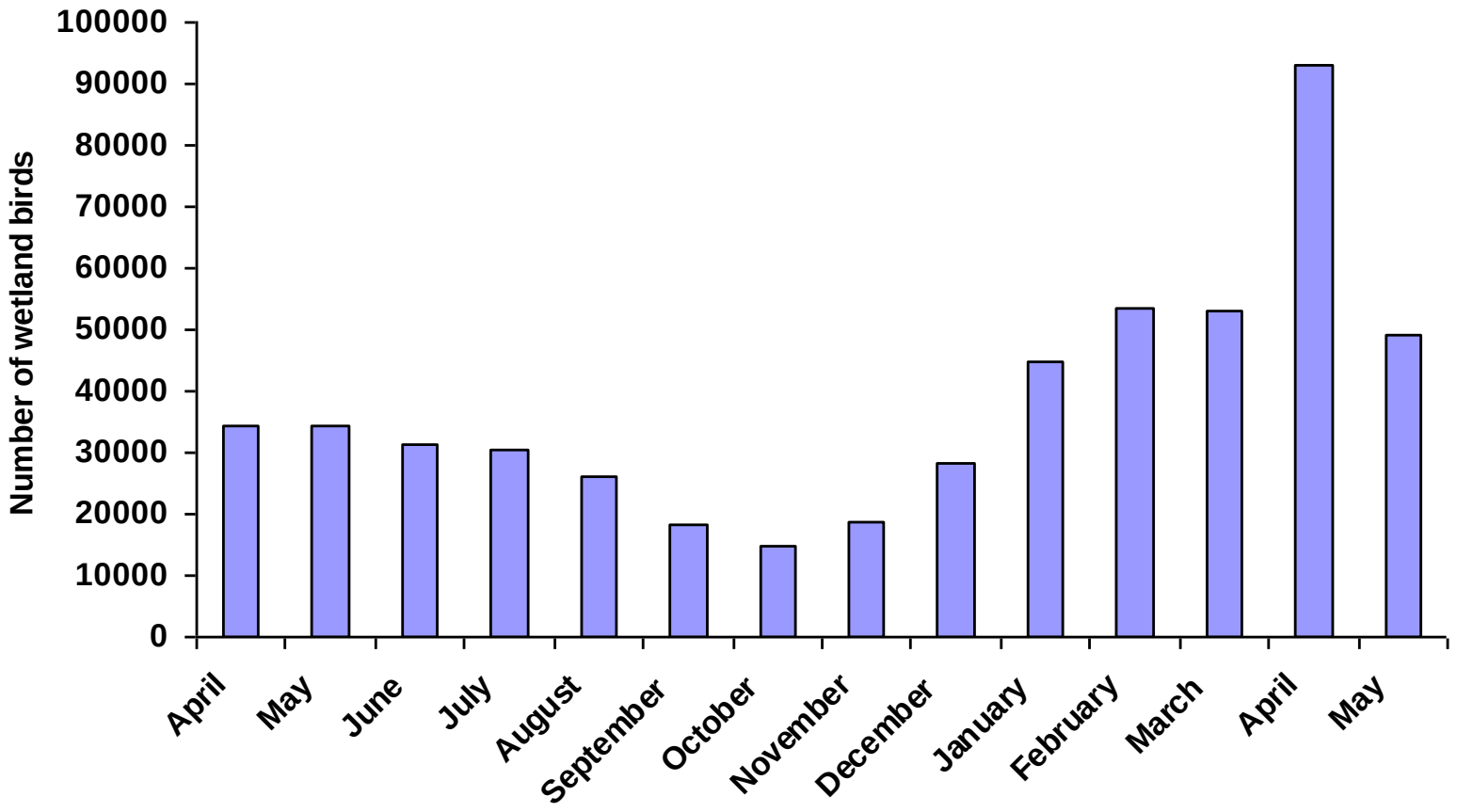
Key scientific values of the lake's birdlife: summary

- Very high species diversity, represented within six main guilds, including international migratory species;
- Comparatively large proportions of the numbers of some species using New Zealand wetlands as over-wintering sites during their migrations;
- Comparatively large numbers of some species which rely on the lake for particular life stages, e.g., southern crested grebe, Australasian bittern, banded dotterel;
- Very large numbers of some species groups, especially waterfowl – up to 90000+ birds at a time;
- Underpinning all these values is a very diverse habitat.

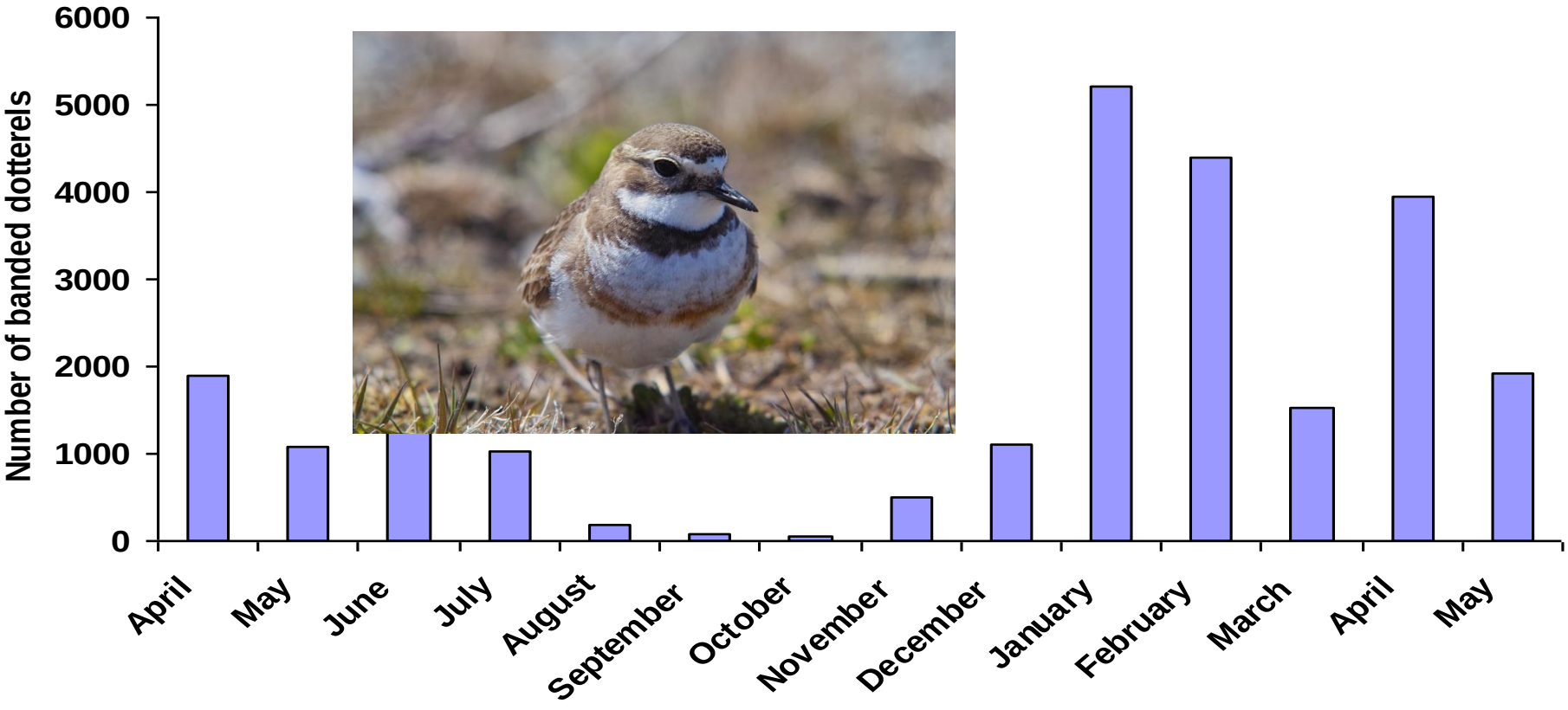
Species guilds and key species (2007)

Guild	Key Species - common name	Percentage of national population using the lake per year	
		1985-88	2006-07
1. Open water divers	Little shag	5%	5%
2. Deep water waders	Pied stilt White heron	33% 19%	33% 19%
3. Shallow water waders	Banded dotterel	10%	10%
4. Dabbling waterfowl	Black swan Canada goose Australasian shoveller Scaup	25% 30% 10% 0%	25% 30% 10% 1%
5. Aerial hunting gulls & terns	Black-billed gull Caspian tern	5% 2%	10%? 2%
6. Swamp specialists	Australasian bittern	3-5%	3-5%
7. Riparian wetland species	None chosen		

The total wetland bird cycle of numbers for Te Waihora/Lake Ellesmere: 1986-87

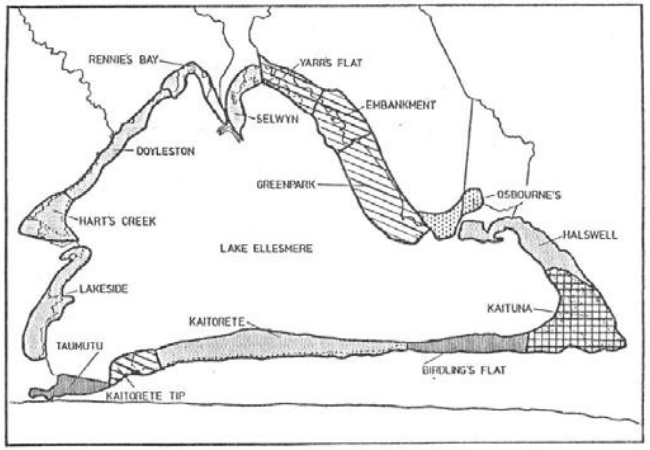


An annual cycle of banded dotterel at Te Waihora Lake Ellesmere: 1986-87

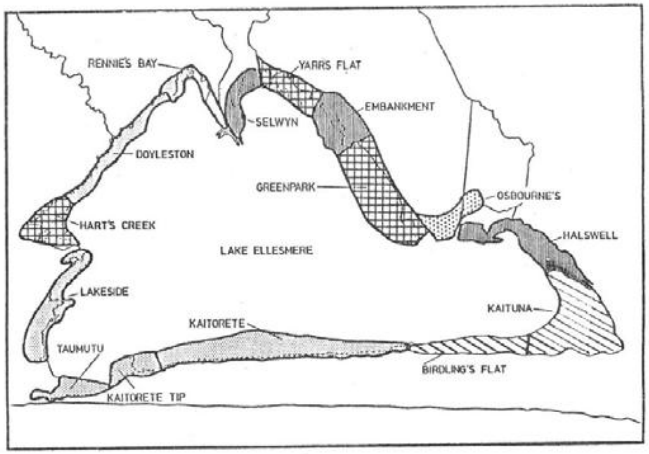


Key habitat areas and ranking

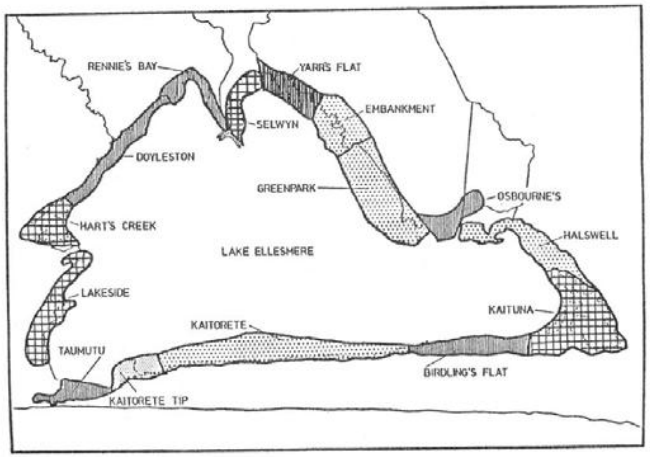
Waders



Waterfowl



Swamp birds



Key

- Outstanding
- High
- Moderate – high
- Moderate
- Potential

Likely ‘preferences’ for different lake levels

Guild	Example Species	Lake level regime that would most benefit this guild	Lake level regime that would be most harmful to this guild
1. Open water divers	Little shag	High lake permanently	Low lake level permanently
2. Deep water waders	Pied stilt	Seasonally adjusted levels including moderate to low levels in spring and autumn	High lake permanently
3. Shallow water waders	Banded dotterel	Seasonally adjusted levels including moderate to low levels in spring and autumn	High lake permanently
4. Dabbling waterfowl	Black swan Canada goose	High lake permanently	Low lake level permanently
5. Aerial hunting gulls and terns	Black-billed gull	High lake permanently	Low lake level permanently
6. Swamp specialists	Australasian bittern	High lake permanently	Low lake level permanently
7. Riparian wetland species	Kingfisher	High lake permanently	Low lake level permanently

Findings in relation to the model

- First, why shallow water or short-legged wading birds? They are a highly valued group of birds and their water depth 'tolerance' range is 0-10cm – it is this range that the PLOVER models increments of in terms of water depth-lake bed profile change.
- In my view, and as far as they go, the findings for this guild appear reasonable.
- But, what about the other 5 important guilds, some prefer different lake levels, e.g., swamp specialists like bittern would likely prefer a high level permanently?
- And what about spatial change of habitat at different levels, i.e., some levels may be good for shallow water waders at Greenpark Sands with others better for other parts of the lake – does this matter?
- Overall – good start but need to go further and model other guild needs and aspects of spatial change.