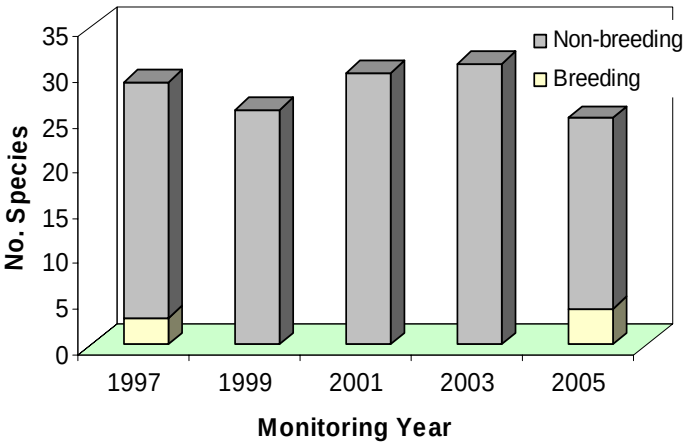
Lake Wheatfield Waterbirds

The Wheatbelt Wetlands Monitoring Program

The Wheatbelt Wetlands monitoring program commenced in 1997 with 5 wetlands and was expanded to 25 wetlands by 1999. Lake Wheatfield was first surveyed in 1997 as one of the original pilot wetlands (Halse *et al* 2002). Each wetland in the program is surveyed at least every second year for aquatic invertebrates and waterbirds, and water chemistry and ground water parameters are measured. Waterbirds are surveyed using binoculars and spotting scope to count all birds present. When lake depth is sufficient a small boat is used to gain better access to all parts of the lake. Evidence of breeding is recorded when observed, i.e. broods or nests with eggs, however, nests are not searched for and these data will be incomplete.

Waterbirds were surveyed at Lake Wheatfield in late Winter (August), Spring (October) and Autumn (March) of each sampling year, i.e. 1997, 1999, 2001, 2003 and 2005. A total of 38 species have been recorded since monitoring began with 19 (50%) of these recorded at least once every sampling year. The high annual re-occurrence of species is partly a response to the extensive areas of adjacent wetlands (The Warden Wetlands) which probably support a large resident population and attract nomadic species to the area every year. This also resulted in variable species richness for individual surveys (from 14 to 26 species) and may reflect the changing location of feeding flocks over the short term.

Waterbird Species richness at Lake Wheatfield



Species richness was not correlated with either depth or salinity. However, abundance was correlated with salinity ($r=0.88$, $df\ 13$ $p<0.01$) with more individuals present as salinity increased. On all occasions it was the congregation of large numbers of ducks (principally Grey Teal, Pink-eared Duck and Pacific Black Duck) as water levels declined that resulted in abundance increasing with increasing salinity. For example at the maximum recorded salinity of 24 mS/cm 1450 Grey Teal and 1670 Pink-eared Duck, comprising 68% of total abundance, were recorded.

At Lake Wheatfield breeding sites are difficult to access and avoided because of the high probability of disturbance. Consequently breeding numbers were probably under estimated. Breeding was recorded in only two sampling years with a total of seven species observed breeding. In spring 2005 Lake Wheatfield was an important breeding site for several colonial breeding species including the Little Black Cormorant and Yellow-billed Spoonbill. Other species recorded breeding were the Australasian Shoveler, Darter, Grey Teal, Pink-eared Duck and Straw-necked Ibis.

Government of Western Australia
Department of Environment and Conservation

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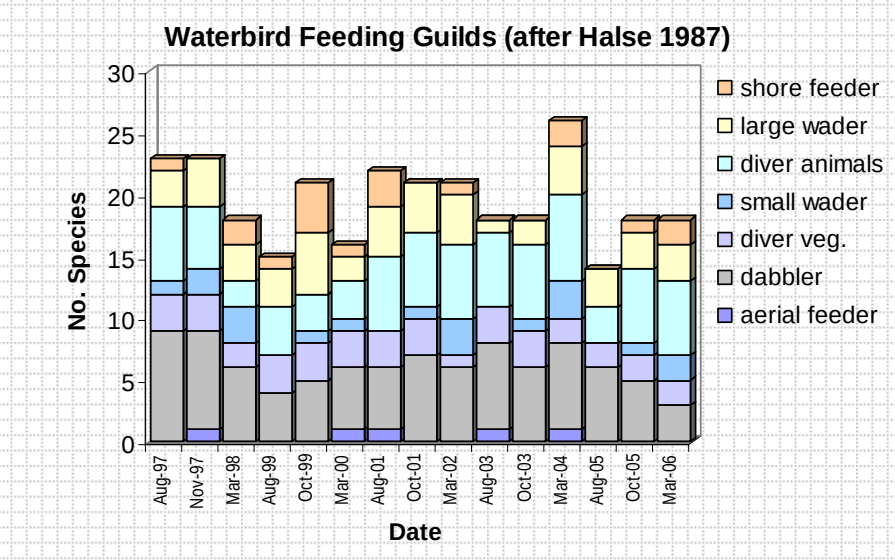

The distribution of waterbird richness across functional feeding groups gives an indication of the available niches for waterbirds at a wetland. The guild structure of the waterbird community at Lake Wheatfield was consistent over the monitoring period with a broad range of feeding guilds represented in all surveys (4 to 7 guilds with a mean of 5.7 guilds per survey). "Diver-animals" and Dabbler guilds were represented by the most species (mean 5 and 5.9 species per survey respectively) and the most individuals (collective mean abundance 77.4% of total). The reed guild was not present because the lake does not include suitable habitat.

TABLE 1 Waterbird species list for Lake Wheatfield compiled from three surveys each sampling year. % Occurrence is the proportion of surveys for which the species was recorded

Species	% Occur.		
Chestnut Teal	100.0	Australian White Ibis	53.3
Pacific Black Duck	100.0	Common Sandpiper	53.3
Little Pied Cormorant	100.0	Australian Pelican	46.7
Eurasian Coot	100.0	Freckled Duck	40.0
White-faced Heron	100.0	Straw-necked Ibis	40.0
Grey Teal	93.3	Nankeen Night Heron	33.3
Little Black Cormorant	93.3	Common Greenshank	33.3
Musk Duck	93.3	Swamp Harrier	26.7
Great Egret	86.7	Black Swan	26.7
Yellow-billed Spoonbill	86.7	Black-fronted Dotterel	26.7
Darter	80.0	Silver Gull	13.3
Hardhead	66.7	Whiskered Tern	6.7
Pink-eared Duck	60.0	Pied Cormorant	6.7
Great Cormorant	60.0	Glossy Ibis	6.7
Hoary-headed Grebe	60.0	White-necked Heron	6.7
Blue-billed Duck	60.0	Banded Lapwing	6.7
Australasian Shoveler	53.3	Australian Wood Duck	6.7
Australian Shelduck	53.3	Black-winged Stilt	6.7
Great Crested Grebe	53.3	Red-kneed Dotterel	6.7

Further reading:

Cale D.J., Halse S.A. and Walker C.D. (2005) Wetland monitoring in the Wheatbelt of Western Australia: site descriptions, waterbird, aquatic invertebrate and groundwater data. *Cons. Sci. W. Aust.* **5** (1): 20-135

Halse S.A. (1987) *Probable effect of increased salinity on the waterbirds of Lake Toolibin.* Technical Report No. 15. Dept. Conservation and Land Management, Perth Western Australia.