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Lake Eganu Waterbirds

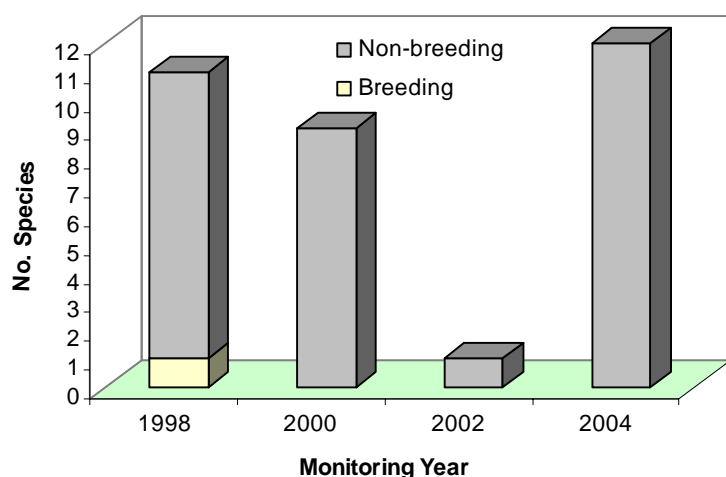
The Wheatbelt Wetlands Monitoring Program

The Wheatbelt Wetlands monitoring program commenced in 1997 with 5 wetlands and was expanded to 25 wetlands by 1999. Lake Eganu was first surveyed in 1998. 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 Eganu in late Winter (August), Spring (October) and Autumn (March) of each sampling year since 1998, i.e. 1998, 2000, 2002, and 2004. A total of 17 species have been recorded since monitoring began.



Waterbird Species Richness at Lake Eganu



The waterbird fauna at Lake Eganu is strongly influenced by salinity. Data from individual surveys indicate that lake depth and richness are positively correlated ($r=0.92$; $df\ 9$, $p<0.05$) and both are negatively correlated with electrical conductivity (depth $r=-0.96$, richness $r=-0.94$; $df\ 9$, $p<0.05$). At water depths below 1m the lake became quite saline (180-230mS/cm; approximately three times the concentration of seawater) and supported only individuals of a few species. This occurred each year in autumn when surveys were typically of much lower richness and abundance than earlier in the year.

Species present at higher salinities included Australian Shelduck, Hoary-headed Grebe, Little Black Cormorant and Banded Stilt. Under less saline conditions these same species were often abundant and dominated the community. For example 3324 Australian Shelduck were recorded in summer 1998, 908 Banded Stilt in autumn 2004 and 253 Hoary-headed Grebe in Summer 2004.

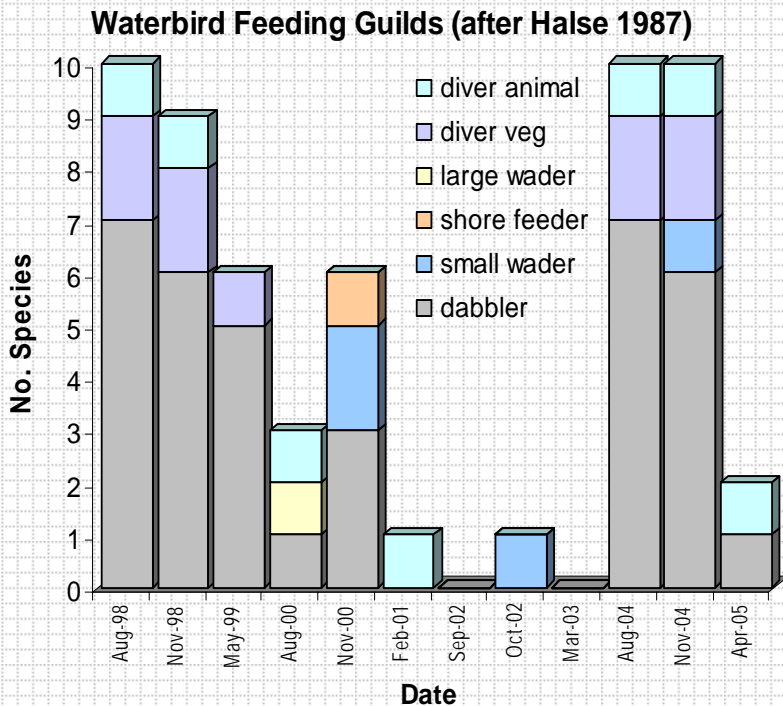
in a relatively constant number of species recorded each year except in 2002 when only a single individual was recorded for the year. The waterbird assemblage was dominated, both in abundance and species richness, by dabbling ducks. The most frequently encountered species were Australian Shelduck, Grey Teal, Pink-eared Duck and Hoary-headed Grebe. Only the Grey Teal has been recorded breeding at Lake Eganu during the monitoring program. This occurred at a time of lower salinity (26.8 mS/cm) when depth was in excess of 2m.

Annually, lake depth was greater than 1.5 m, and salinity was consequently low, at some time during all years except 2002, when maximum depth was 0.7 m. This was reflected



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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 waterbird community at Lake Eganu was dominated by species of dabbling ducks on most occasions and reflected the availability of invertebrate and macrophyte food for these species and the absence of shallows or shoreline for other feeding guilds. When depth was low, waders both large and small and shore feeders were present although represented by only a few species. Extensive beds of submerged macrophytes ensure the presence of the Eurasian Coot and Musk Duck at greater water depths.

TABLE 1 Waterbird species list for Lake Eganu compiled from three surveys each sampling year except 2002 when the lake was dry for the third survey. % Occurrence is the proportion of surveys, with depth greater than 0 m, for which the species was recorded

Species	1998	2000	2002	2004	% Occurrence
Australian Shelduck	√	√	0	√	60
Grey Teal	√	√	0	√	60
Pink-eared Duck	√	0	0	√	60
Hoary-headed Grebe	√	√	0	√	60
Black Swan	√	√	0	√	50
Pacific Black Duck	√	0	0	√	50
Musk Duck	√	0	0	√	50
Eurasian Coot	√	0	0	√	40
Australasian Shoveler	√	0	0	√	40
Banded Stilt	0	√	√	√	30
Chestnut Teal	√	0	0	0	20
Hardhead	√	0	0	√	20
Silver Gull	0	√	0	0	10
Little Black Cormorant	0	√	0	0	10
Red-capped Plover	0	√	0	0	10
Red-necked Avocet	0	0	0	√	10
White-faced Heron	0	√	0	0	10

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.