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## Blue Gum Swamp Waterbirds

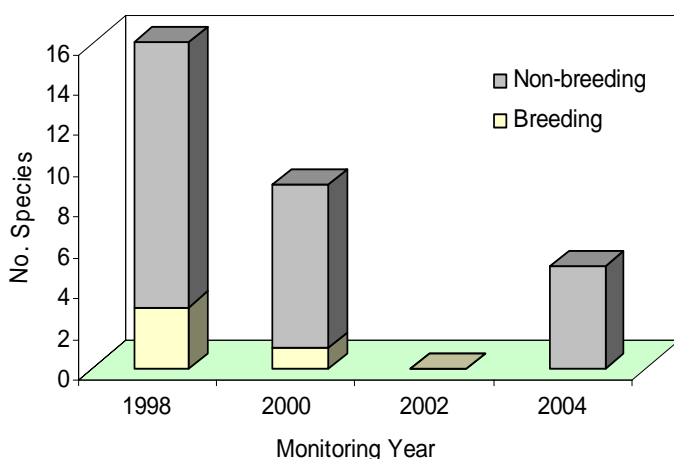
### The Wheatbelt Wetlands Monitoring Program

The Wheatbelt Wetlands monitoring program commenced in 1997 with 5 wetlands and was expanded to 25 wetlands by 1999. Blue Gum Swamp 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 a spotting scope to count all birds present. 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 Blue Gum Swamp 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 19 species have been recorded since monitoring began.



### Waterbird Species Richness at Blue Gum Swamp



Blue Gum Swamp is a small wetland which flooded from the adjacent chain of salt lakes during heavy rains in 1999. Prior to this time (i.e. 1998) the wetland supported 16 species including Grey Teal, Pink-eared Duck and Eurasian Coot which bred successfully. Following this flooding event salinity increased by a factor of seven as highly saline inflow entered the lake.

While many attributes of the waterbird assemblage including species richness and abundance have been reduced since this time this has coincided with a period of particularly low water levels confounding the effects of the increased salinity itself.

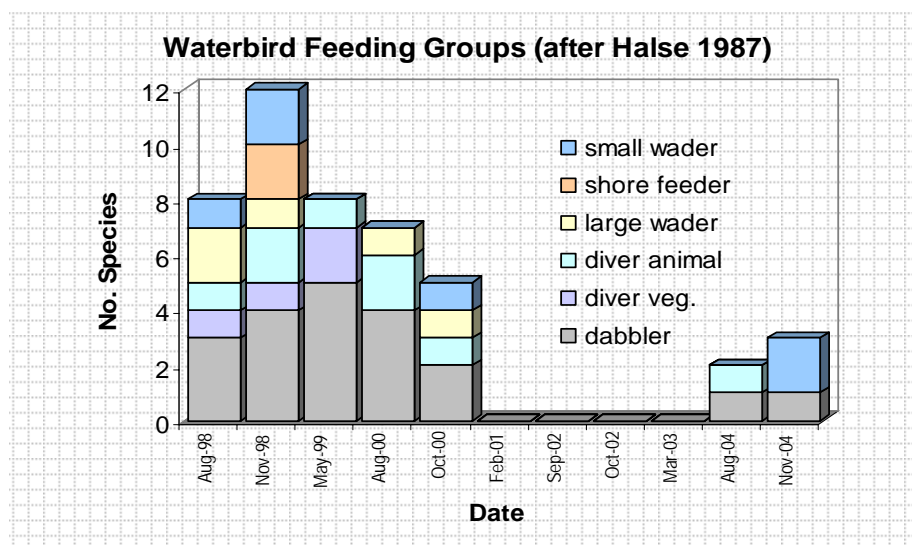
Winter surveys from 1998 and 2000 were of similar depth (0.9m and 0.7m respectively) but vastly different salinities (5.4mS/cm and 38.2mS/cm respectively). While species richness was similar (8 and 7 species respectively) the number of feeding guilds and distribution of richness between guilds was

reduced under the more saline conditions. Shannon-Weiner diversity index was also reduced by increased salinity ( $H' = 0.57$  down to 0.34) principally because Grey Teal dominated the community numerically under more saline conditions



Department of Environment and Conservation

## Blue Gum Swamp Waterbirds



The distribution of waterbird richness across functional feeding groups gives an indication of the available niches for waterbirds at a wetland. The greatest diversity of feeding groups was observed at Blue Gum Swamp during Spring 1998 before salinity increased. At this time the wetland was supporting a range of types of waterbird despite its small size.

TABLE 1 Waterbird species list for Blue Gum Swamp compiled from three surveys each sampling year except between autumn 2001 and autumn 2003 when the lake was dry. % Occurrence is the proportion of surveys, with depth greater than 0 m, for which the species was recorded

Species	1998	2000	2002	2004	% Occurrence
Grey Teal	√	√	0	√	75
Hoary-headed Grebe	√	√	0	√	62.5
Australian Shelduck	√	√	0	0	50
Pacific Black Duck	√	√	0	√	50
Pink-eared Duck	√	√	0	0	50
Eurasian Coot	√	0	0	0	37.5
White-faced Heron	√	√	0	0	37.5
Black-fronted Dotterel	√	√	0	0	37.5
Australasian Grebe	√	0	0	0	25
Yellow-billed Spoonbill	√	√	0	0	25
Australasian Shoveler	√	0	0	0	12.5
Hardhead	√	0	0	0	12.5
Little Pied Cormorant	0	√	0	0	12.5
Musk Duck	√	0	0	0	12.5
Straw-necked Ibis	√	0	0	0	12.5
Australian Wood Duck	√	0	0	0	12.5
Black-winged Stilt	0	0	0	√	12.5
Red-kneed Dotterel	√	0	0	0	12.5
Red-necked Avocet	0	0	0	√	12.5

**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.