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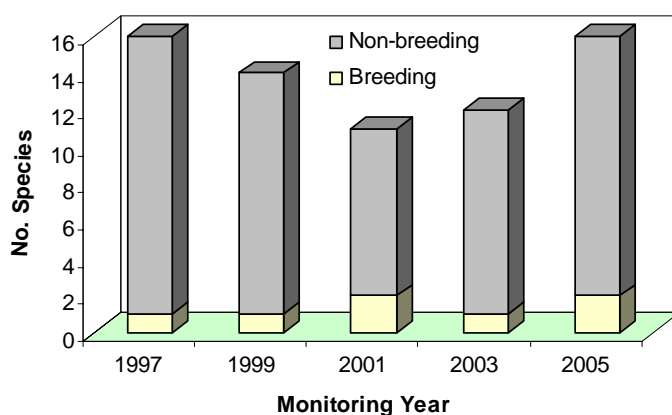
Lake Coyrecup Waterbirds

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 Coyrecup 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 a 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.



Waterbird Species Richness at Lake Coyrecup



Waterbirds were surveyed at Lake Coyrecup in late Winter (August), Spring (October) and Autumn (March) of each sampling year, i.e. 1997, 1999, 2001, 2003, and 2005. In 2001 and 2003 the lake was dry at the time of the autumn survey. A total of 28 species have been recorded since monitoring began and four of these have bred on the lake.

Annually species richness has remained constant ranging from 14 to 16 species when the lake held water for all surveys but dropping as low as 11 species when water levels reduced the survey effort to twice per year.

Waterbird abundance was dominated by the Australian Shelduck and Grey Teal which were recorded for most or all surveys (Table 1). These abundant species were the only ones to breed regularly on the lake. The Purple Swamphen and Red-capped Plover were recorded breeding on single occasions only. While species richness was similar over the whole year, individual surveys varied greatly. Richness for individual surveys was positively correlated with water depth ($r=0.658$, $df13$ $p<0.01$) and ranged from three to twelve species when water was present. Richness was lowest in autumn each year when summer evaporation had reduced water levels and increased salinity. Heavy rainfall in 2005 resulted in lake outflow and reduced salinity,

and a large flock of Freckled Duck persisted in the wetlands from spring through autumn.

The distribution of waterbird richness across functional feeding groups (see figure overleaf), was strongly influenced by lake depth. Lake Coyrecup is relatively flat bottomed and as water depth declines the area of shallow margin increases rapidly. At depths less than 0.5 m the waterbird fauna was simple; comprising mostly small waders feeding in these shallows and dabbling ducks persisting in deeper parts. With greater lake depths most feeding guilds are represented although often by only single species. Depths greater than 1 m flood fringing samphire and at this depth large waders (e.g. White-faced Heron) and shore feeding species (e.g. Silver Gull) are favoured although only small numbers were recorded.



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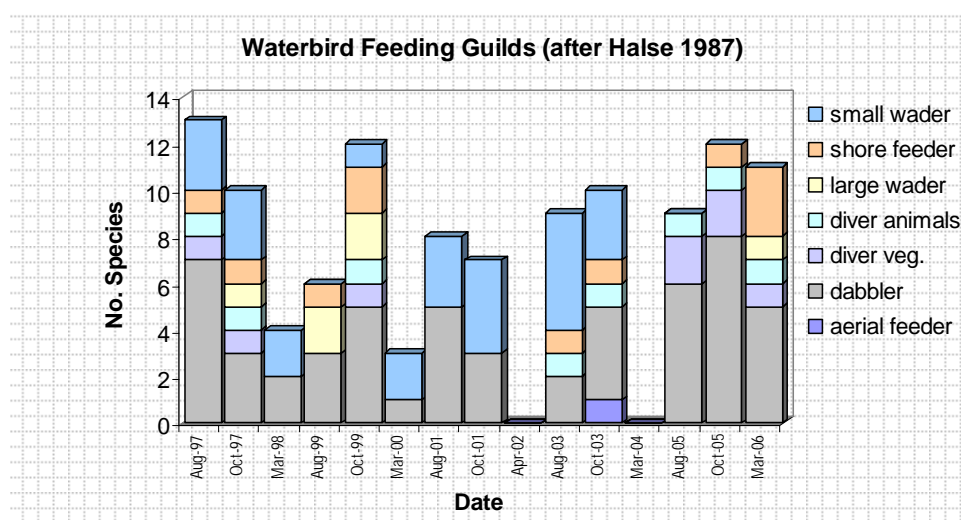


TABLE 1 Waterbird species list for Lake Coyrecup compiled from three surveys each sampling year except 2001 and 2003 when the lake dried in autumn. %Occurrence is the proportion of surveys, with depth greater than 0 m, for which the species was recorded

Species	1997	1999	2001	2003	2005	% Occur.
Australian Shelduck	√	√	√	√	√	100
Grey Teal	√	√	√	√	√	92.3
Black Swan	√	√	√	√	√	76.9
Silver Gull	√	√	0	√	√	61.5
Hoary-headed Grebe	√	√	0	√	√	53.8
Red-capped Plover	√	√	√	√	0	53.8
Banded Stilt	√	√	√	√	0	46.1
Pink-eared Duck	√	0	0	√	√	38.4
Eurasian Coot	√	0	0	0	√	38.4
Pacific Black Duck	0	√	√	0	√	30.7
Black-winged Stilt	√	0	√	√	0	30.7
Chestnut Teal	√	√	√	0	0	23.0
Freckled Duck	√	0	0	0	√	23.0
Musk Duck	0	√	0	0	√	23.0
White-faced Heron	0	√	0	0	√	23.0
Yellow-billed Spoonbill	√	√	0	0	0	23.0
Red-necked Stint	0	0	√	√	0	23.0
Australasian Shoveler	0	0	0	0	√	15.3
Hardhead	√	0	0	0	√	15.3
Hooded Plover	0	√	√	0	0	15.3
Red-necked Avocet	√	0	√	0	0	15.3
Whiskered Tern	0	0	0	√	0	7.6
Little Pied Cormorant	0	0	0	0	√	7.6
Australian White Ibis	0	0	0	0	√	7.6
Straw-necked Ibis	0	0	0	0	√	7.6
Australian Wood Duck	0	√	0	0	0	7.6
Common Greenshank	√	0	0	0	0	7.6
Curlew Sandpiper	0	0	0	√	0	7.6

Further reading:

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.

Halse, S.A., Cale, D.J., Jasinska, E.J., Shiel, R.J. (2002) Monitoring change in aquatic invertebrate biodiversity: sample size, faunal elements and analytical methods *Aquatic Ecology* **36**: 1-16