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## Fraser Lake Waterbirds

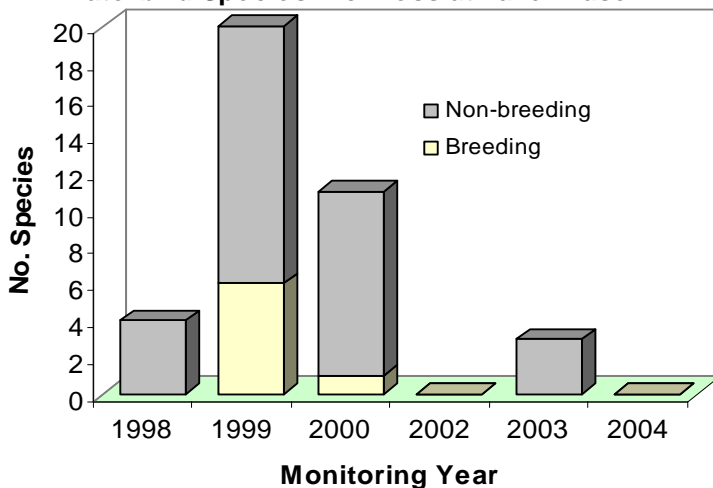
### The Wheatbelt Wetlands Monitoring Program

The Wheatbelt Wetlands monitoring program commenced in 1997 with 5 wetlands and was expanded to 25 wetlands by 1999. Fraser Lake 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 Fraser Lake in late Winter (August), Spring (October) and Autumn (March) of each sampling year, i.e. 1998, 1999, 2000, 2003 and 2004. Fraser Lake filled in winter 1999 and slowly dried through 2000. In all other years the lake held water for relatively shorter periods. Fraser Lake was dry for all of 2002 and 2004.

**Waterbird Species Richness at Lake Fraser**



A total of 21 species have been recorded from 11 surveys in which the lake held water. Species richness was positively correlated with lake depth ( $r=0.726$ ,  $df\ 9$ ,  $p<0.05$ ). In 2000 the lake was on a drying trend and despite having similar water levels to those recorded during 1999, both richness and abundance were reduced. This suggests an improved habitat quality for water birds immediately post filling, which was short lived and may be linked to the declining quality of beds of the reed-like grass *Austrostipa elegantissima*, which deteriorated after several months of inundation.

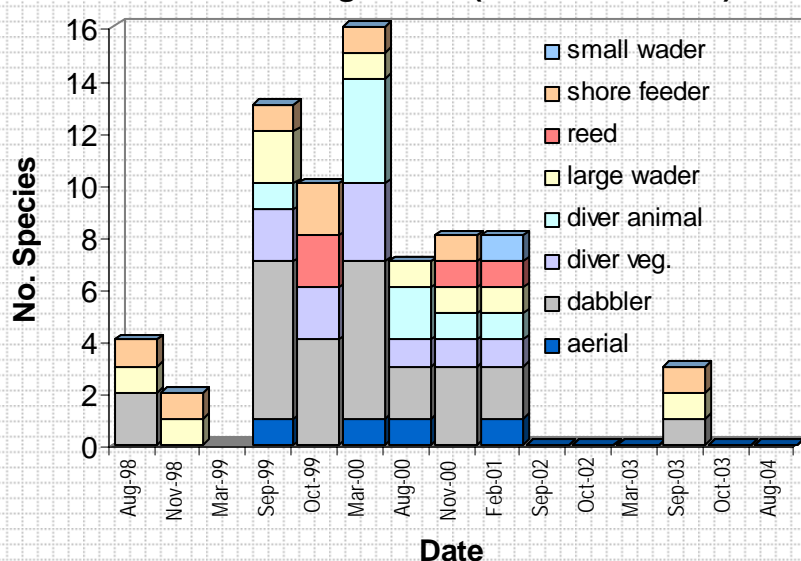
During 1999 the lake was a locally important breeding site with 6 species breeding and a total of 18 broods recorded throughout the year. Changes in habitat quality were again reflected in much less breeding activity in 2000 despite almost identical water levels during the bulk of the breeding season. Little is documented about the core habitat of the Black-tailed Native Hen which is generally

considered to have an 'irruptive' distribution; suddenly appearing at a wetland often in great numbers before moving on to be absent for many years. At Fraser Lake the Black-tailed Native Hen was not particularly abundant, but was recorded in more than half of the surveys in which the lake held water, suggesting that wetlands of this type may be important refugia for this species.



## Fraser Lake Waterbirds

### Waterbird Feeding Guilds (after Halse 1987)



The bed of Fraser Lake was dominated by *Austrostipa elegantissima*, a tall reed like grass which supported a waterbird assemblage with a diverse feeding guild structure including between 2 and 7 guilds (mean 4.67) per survey. Most guilds, however, were represented by only a single species during a survey. The dabbler and diver guilds were exceptions. Members of the reed guild, including Bailon's Crake and Little Grassbird, are likely to be dependent on *A. elegantissima* beds for their persistence at the wetland.

TABLE 1 Waterbird species list for Fraser Lake compiled from three surveys each sampling year. However, only in 1999 and 2000 did the lake contain water for all surveys. % Occurrence is the proportion of surveys with depth greater than 0 m for which the species was recorded

Species	1998	1999	2000	2003	% Occurrence
Grey Teal	√	√	√	√	88.88
White-faced Heron	√	√	√	√	88.88
Eurasian Coot	0	√	√	0	66.66
Pacific Black Duck	0	√	√	0	66.66
Black-tailed Native-hen	√	√	0	√	55.55
Australasian Grebe	0	√	√	0	55.55
Swamp Harrier	0	√	√	0	44.44
Hardhead	0	√	√	0	44.44
Australian Shelduck	√	√	0	0	33.33
Australian Wood Duck	0	√	√	0	33.33
Pink-eared Duck	0	√	0	0	33.33
Musk Duck	0	√	0	0	33.33
Little Grassbird	0	√	√	0	33.33
Australasian Shoveler	0	√	0	0	22.22
Little Pied Cormorant	0	√	√	0	22.22
Blue-billed Duck	0	√	0	0	11.11
Hoary-headed Grebe	0	√	0	0	11.11
Little Black Cormorant	0	√	0	0	11.11
Baillon's Crake	0	√	0	0	11.11
Black-winged Stilt	0	0	√	0	11.11
Yellow-billed Spoonbill	0	√	0	0	11.11

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.