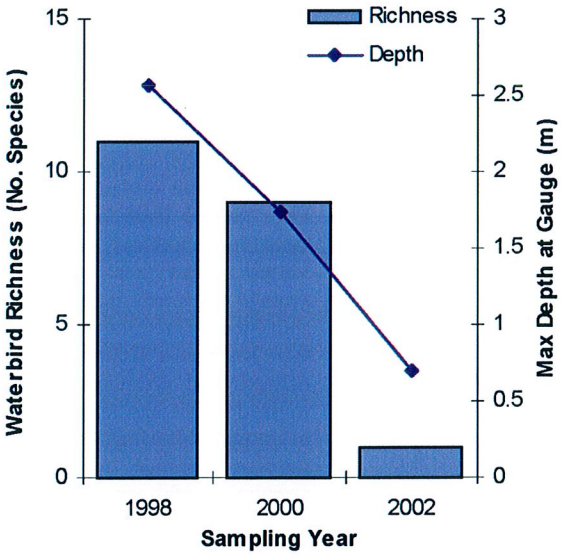
Lake Eganu Waterbirds

Lake Eganu is situated in the northern sandplain 20 km south west of Coorow. The lake is secondarily saline, having deteriorated since the late 1960s.

Salinity has increased at Lake Eganu since the 1960s (photo by S.A.Halse)

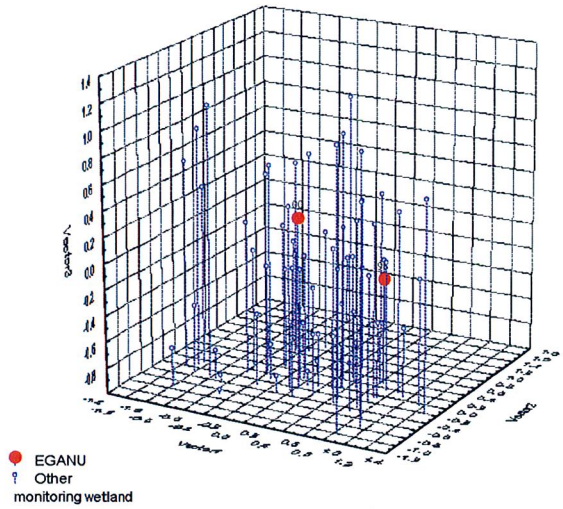
Species Richness

Sixteen species of waterbird were recorded from Lake Eganu over three sampling seasons. Species richness and abundance were strongly dependent on water levels. Only a single individual (Banded Stilt) was recorded in 2002, while in 1998 more than 5800 individuals and 12 species were recorded



Species richness at Lake Eganu.

Ordination of waterbird surveys from different years indicates markedly different community structure and results from both changes in abundance and species turnover. Grey Teal , Australian Shelduck, Black Swan and Hoary-headed Grebe were the only species common to both 1998 and 2000 surveys. 2002 was omitted from the ordination because only one species occurred.



MDS Ordination (SSH) of range standardized abundance of waterbird species.

Further Reading

Cale, D.J., S.A.Halse and C.D.Walker (2004) Wetland monitoring in the Wheatbelt of Western Australia: site descriptions, waterbird, aquatic invertebrate and groundwater data. *Conservation Science W. Aust* **5**: 20-135

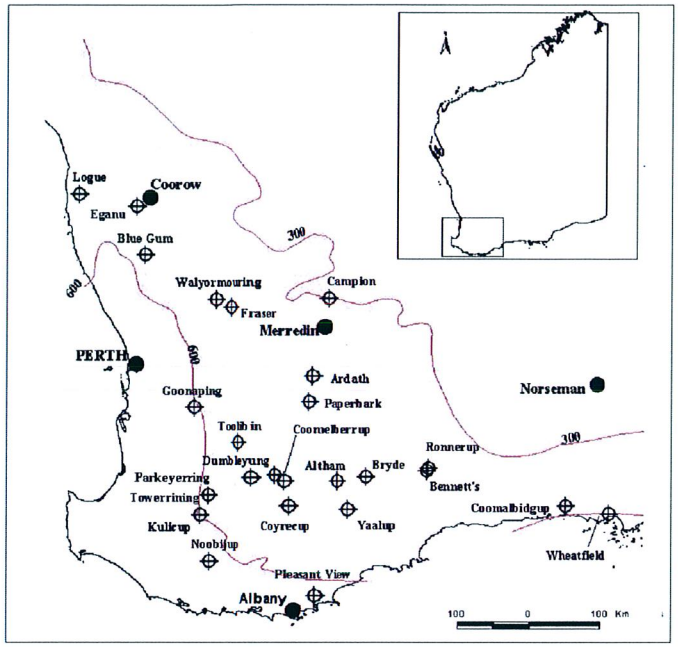
Halse, S.A., D.J. Cale, E.J. Jasinska and R.J. Shiel (2002) Monitoring change in aquatic invertebrate biodiversity: sample size, faunal elements and analytical methods. *Aquatic Ecology* **36**:1-16

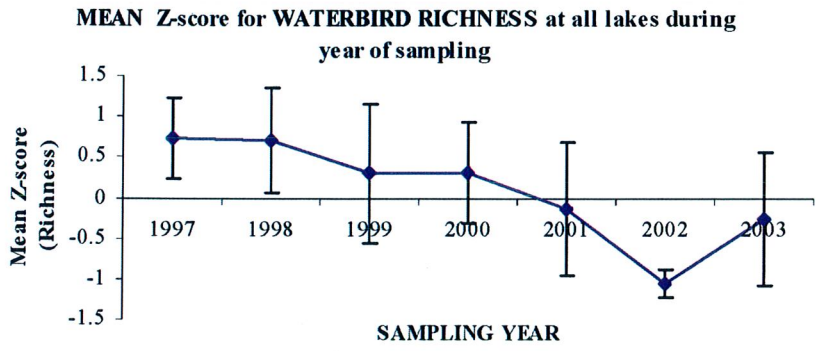
Jaensch, R.P., R.M. Vervest and M.J. Hewish (1988) Waterbird surveys of wetland nature reserves in south-western Australia: 1981-85. Report No. 30, Royal Australasian Ornithologists Union, Melb.

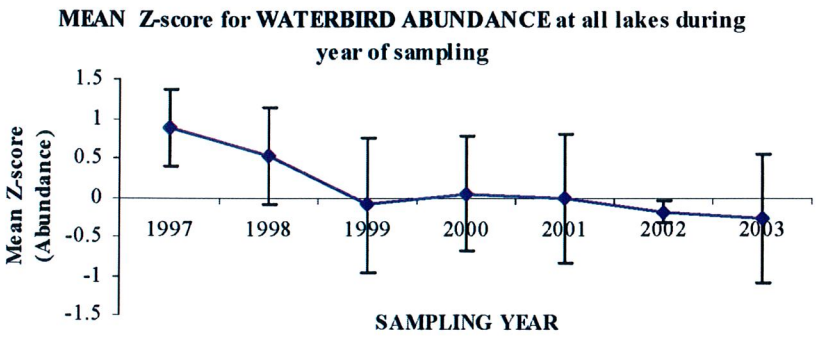
Salinity Action Plan
Wheatbelt Wetlands Monitoring Programme

Wheatbelt Wetlands Monitoring

The Salinity action Plan Wheatbelt Wetlands Monitoring programme commenced in 1997 with the sampling of five wetlands and was expanded to include 13 in 1998 and finally a total of 25 wetlands in 1999. These monitoring wetlands have been sampled every second year since commencement, such that half of the wetlands are sampled in alternating years. Wetlands first sampled in 1997 have now been sampled 4 times. While this actually yields few data points and interpretation is, at this stage, imprecise it is expected that as the project continues and further data points are collected an increasingly accurate estimate of wetland trends will be achieved. Faunal sampling includes; waterbird species richness and abundance, aquatic invertebrate species richness and abundance and water-chemistry. Sampling of these parameters is directed toward tracking trends in biodiversity of the wetlands individually and as a group to reflect the status of wheatbelt wetlands generally. This brief note presents data for waterbird surveys up to 2003 and is intended as an annual mechanism for reporting data from this project.







Waterbird Richness and Abundance in the Wheatbelt

The number of species present (Richness), is a valuable measure of biodiversity and abundance is indicative of the productivity of wetlands. The mean z-score for waterbird richness and abundance is calculated in the same way. At each wetland the normal deviate (z) is calculated for each year, from the entire dataset for that wetland. The mean z-score is the average of these annual z scores over all wetlands. Thus, the mean z-score can be used to measure the overall trend in monitored wetlands over time. Values below zero reflect lower than average species richness or waterbird abundance. Over the period of monitoring there has been a decline in waterbird species richness and abundance at the monitored wetlands. This has coincided with a decline in rainfall following 1999 with 2000-2002 showing 'average' to 'very much below average' rainfall over the study area. It is too early to ascribe the reduction in species richness and abundance to low rainfall, although it is intuitive that the lower water levels and higher salinities associated with low rainfall are likely to lead to fewer species using wetlands.

Government of Western Australia

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