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Blue Gum Swamp Waterbirds

Blue Gum Swamp, also known as Lake View, is situated 10 km north west of Moora. The Lake is semi-permanent and brackish although salinity may be increasing, principally from its connection to a greater chain of saline wetlands stretching north to the Yarra Yarra Lakes. Blue Gum Swamp and its surrounding wetlands were a popular site for duck hunting prior to its cessation in 1992.

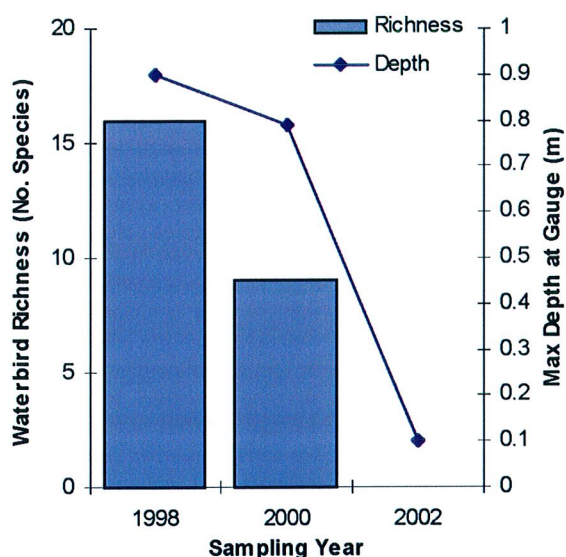


Increasing salinity and more frequent flooding have caused some tree deaths at Blue Gum Swamp (photo by S.A.Halse)

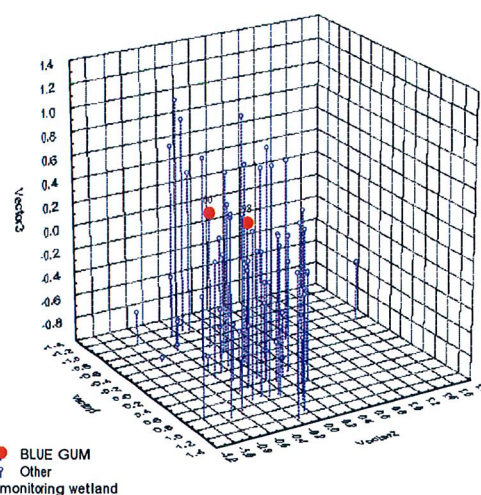
Species Richness

A total of 17 species were recorded at Blue Gum Swamp and richness was strongly dependent on water depth and salinity. Salinity increased in 2000, after the lake flooded with saline water from the adjoining chain of wetlands. At this time species richness decreased despite similar water depths. Four species were recorded breeding, of which only the Australian Shelduck bred in 2000

No waterbirds were recorded in 2002, however, the waterbird assemblage was similar in 1998 and 2000, despite changes in richness, because 53% of recorded species were present in both years and species recorded in only one year tended to be of low abundance.



Species richness at Blue Gum Swamp.



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

Further Reading

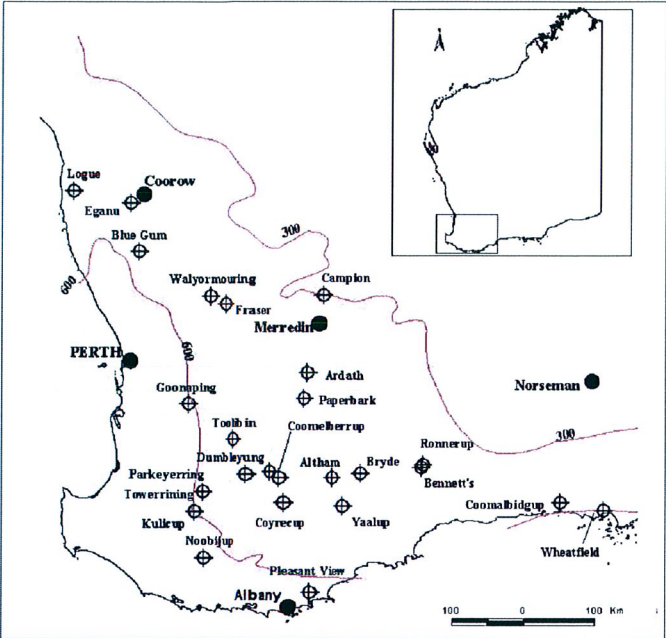
Cale, D.J., S.A.Halse and C.D.Walker (2004) Wetland monitoring in the Wheatbelt of Western Australia: site descriptions, waterbird, aquatic invertebrate and groundwater data. *Conservation Science W. Aust* 5: 20-135

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

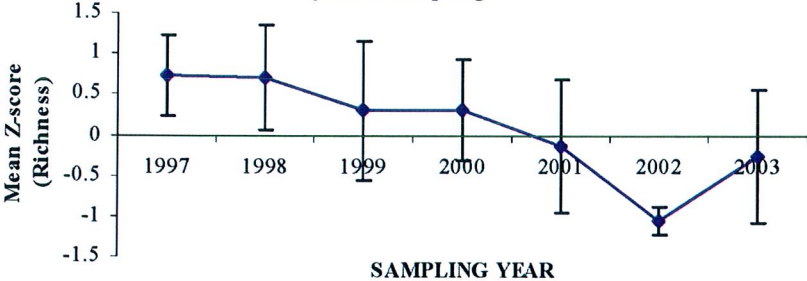
Salinity Action Plan Wheatbelt Wetlands Monitoring Programme

Wheatbelt Wetlands Monitoring

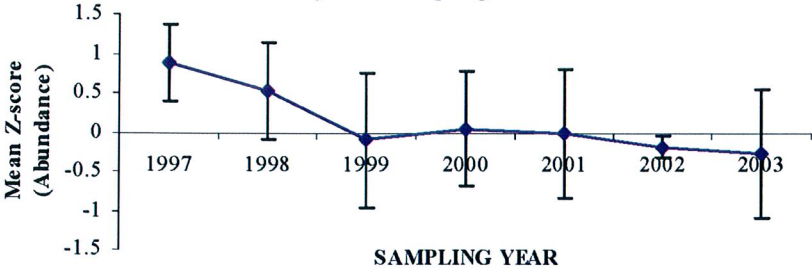
The Salinity action Plan Wheatbelt Wetlands Monitoring programme commenced in 1997 with the sampling of five wetlands and was expanded to include 13 in 1998 and finally a total of 25 wetlands in 1999. These monitoring wetlands have been sampled every second year since commencement, such that half of 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.



MEAN Z-score for WATERBIRD RICHNESS at all lakes during year of sampling



MEAN Z-score for WATERBIRD ABUNDANCE at all lakes during year of sampling



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.