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Bennetts Lake Waterbirds

Bennetts Lake lies in the Dunn Rock Nature Reserve 25 km south west of the town of Lake King. While generally saline, the lake periodically fills to in excess of 2 m and may be brackish for a time as the lake slowly dries over succeeding years.


Bennetts Lake showing flooded dune swale in far middle ground (photo by S.A.Halse)

Species Richness

A total of 25 species were recorded at Bennetts Lake during the period of monitoring. Richness was constant with 15 to 16 species recorded each year. A third (32%) of these species were recorded in all years and 20% of species were recorded in only one year. While richness varied little from year to year the species present at the lake changed according to the filling condition of the lake.

Communities present in 1998, before filling, included many wading and shorebird species not encountered in most other years. Immediately after filling, the lake supported a different assemblage from following years and abundance was low (400 individuals counted in 2000). As lake depth peaked and then began to decline annual abundances were in excess of 3000 individuals and dominated by Australian Shelduck, Black Swan and Grey Teal.
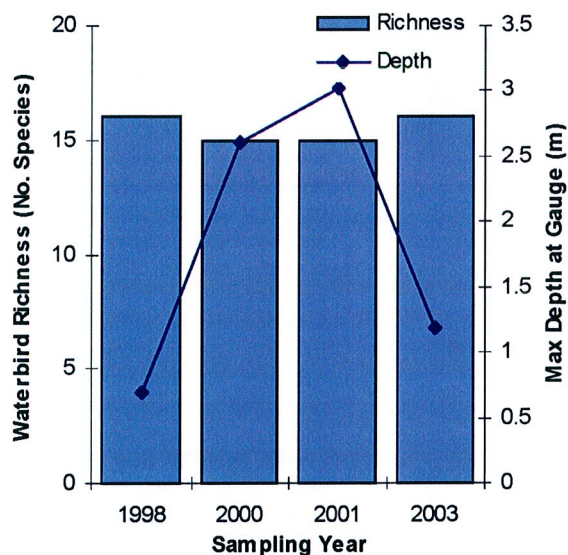
Species richness at Bennetts Lake.
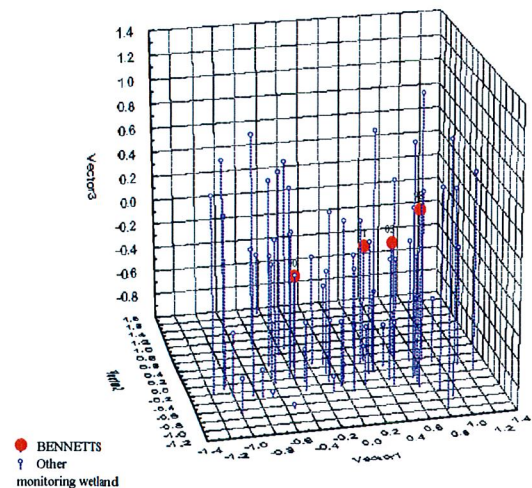
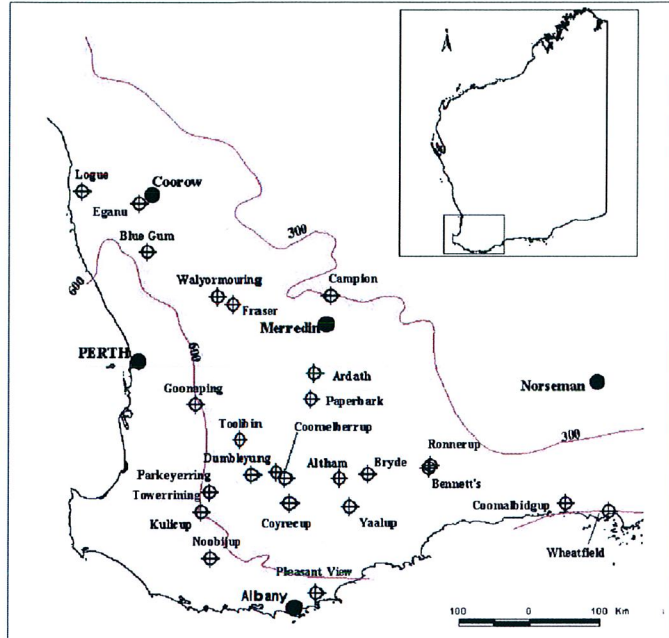*MDS Ordination (SSH) of range standardized abundance of waterbird species.*

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
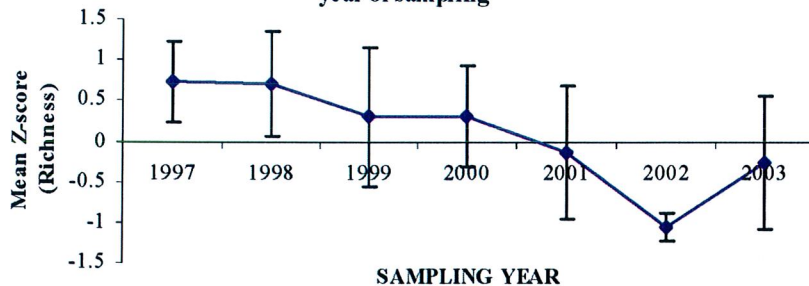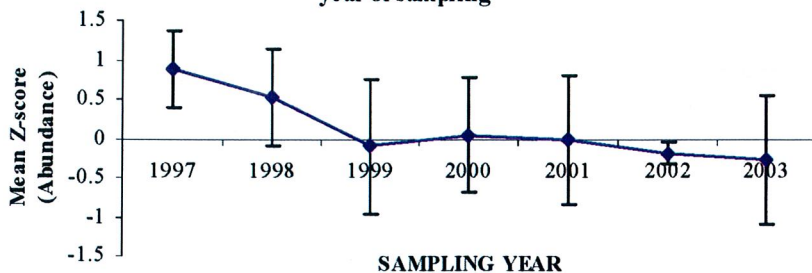
Wheatbelt Wetlands Monitoring

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.

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

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