

6. Identification of factors other than dryland salinity that will affect results

- Errors made in species identification of plant, bird and macroinvertebrate species. The importance of having a clear methodology section cannot be overstated, so that if the same people do not undertake surveys (very likely with a long-term program), they can refer to previous field notes and results.
- Drying and flooding of sites may not happen at the same time each year and may result in invertebrate sites being dry when they were flooded the same time in the previous year. This may affect species composition by favouring some and disadvantaging other species.
- Some species are not present every year as they are dependent on specific climatic/seasonal conditions, such as above average rainfall.
- Different stages of vegetative growth, such as plant present but only as tubers. This will affect species identification results.
- Changes in site condition, such as seasonal flooding and the deposition of silt and flood debris may account for changes in species diversity or abundance at particular sites. It may also be a source of new weed infestations.
- Grazing by stock, kangaroos, rabbits or extensive leaf insect attack.
- Access by vehicles across several quadrats needs to be controlled as it introduces another unnecessary variable.
- Ongoing succession, such as a stand of mature Black Box or Wattle regeneration reaching senescence.
- Subtle changes not able to be easily observed with one annual site visit.
- Removal of some or all steel pegs at several quadrats by person(s) unknown. (Lake Buloke Quadrat B had to be fully repegged again in 2002.)
- Salt indicator species list taken from *Spotting Soil Salting A Victorian Field Guide to Salt Indicator Plants (1995)* may need to be updated or modified, as many salt indicator species are not included. Conversely some common agricultural weeds such as rye grass are in the book and in the absence of other indicator species do not suggest that an area is affected by salinity.
- Possible reasons for variation in species diversity and levels of abundance between previous, current and future surveys at some sites have been caused by human activities. For example At Black Eagle Reserve, the Axe Creek Landcare group in 1998 planted trees and shrubs within and near the quadrats. The Yankee Creek Reserve has an overhead powerline running along the western

section of the site and Powercor routinely prune trees as part of their maintenance works.

- Following on from the previous point, it is quite clear that some sites are not ideal for monitoring due to the high level of disturbance exposing the area to outside variables. However the program has now been running for seven years and the large collection of data is still providing useful information about the natural environment (particularly how vegetation responds to drought). It is not feasible to commence monitoring at new sites to replace some less than ideal ones from either a technical or budgetary perspective.

Conclusions should not be quickly attributed to salinity mitigation works or lack of them. The reasons for change in species diversity, drought tolerance or abundance may be a response to a change in a range of factors. The identification of changing trends in each parameter as a result of salinity mitigation works can only be based on data collected avoiding unwanted variables. For results to be more conclusive a number of regular environmental surveys need to continue to be performed.

It is very important that any observations that may account for discrepancies in data collection be described and analysed. For example this may include events such as the flooding of a vegetation quadrat, evidence of site disturbance – either natural or human or heavy grazing pressure.

(Edited from Davies 2003).

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