

2018 Eyre Peninsula Groundwater Dependent Ecosystem Report Cards



Overview



What are Groundwater Dependent Ecosystems?

Groundwater Dependent Ecosystems (GDE's) are a range of diverse communities of plants, animals, fungi and microbes whose functions depend on groundwater. These include watercourses, riparian zones, wetlands, floodplains, salt lakes and estuaries, as well as near-shore marine and aquifer ecosystems.

On Eyre Peninsula these ecosystems are often dominated by plants such as Red gums (*Eucalyptus camaldulensis*), Tea-trees (*Melaleuca spp.*) or reeds. Not all GDE's draw on groundwater directly and not all are solely reliant on groundwater. However, groundwater provides a vital and reliable source of water to these ecosystems because of the generally low rainfall environment and the lack of watercourses in the region.



Location of GDE monitoring sites

How is condition measured?

The condition of Red gums has been measured for 50 trees (at five sites across the Eyre Peninsula as shown on the map) by visually assessing tree condition variables such as crown extent, crown density, epicormic growth, reproduction, crown tip growth, leaf die off, leaf damage, mistletoe and bark form. The data is then used to derive a multi-variable Redgum Condition Index (RCI) score. This method was developed by Nick Souter (2018).

Site	RCI Score	Condition	Trend (2016 - 2018)	Type of Treatment
Bellevue	0.46	Moderate	7% decline	Control site for Bramfield (No licensed extraction)
Bramfield	0.44	Moderate	5% decline	Licensed extraction site
Polda	0.41	Moderate	10% decline	Historical licensed extraction site
Wanilla	0.48	Moderate	No change	Licensed extraction site
Coultas	0.53	Moderate	5% increase	Control site for Wanilla (No licensed extraction)

Table: Overview of monitoring results and treatment at each site

How are we checking on the health of GDE's?

One of the objectives of the 'Water Allocation Plan for the Southern Basins and Musgrave Prescribed Wells Areas (2016)' is to minimise the impact of the licenced taking of water on GDEs as they occur today. Changes in groundwater quantity (e.g. depth, extent, duration) and quality (e.g. salinity) may affect the condition and survival of GDE's. Natural Resources Eyre Peninsula has developed a monitoring program to establish a baseline and monitor changes in groundwater level, salinity and flora condition for wetlands and other groundwater dependent vegetation. Results from this monitoring program form the basis for these report cards.

Access the full report: Muller K. L., N.J. Souter and Australian Water Technology (2019). Eyre Peninsula Groundwater Dependent Ecosystem Data Analysis: Red Gum tree condition data (five sites). A report for Natural Resources Eyre Peninsula, Department for Environment and Water, Port Lincoln, South Australia. https://landscape.sa.gov.au/files/sharedassets/eyre_peninsula/water/2019-ep-groundwater-dependent-ecosystems-data-analysis-red-gums-rep.pdf

