

Bramfield



Eyre Peninsula Groundwater Dependent Ecosystems monitoring site
2018 Report Card



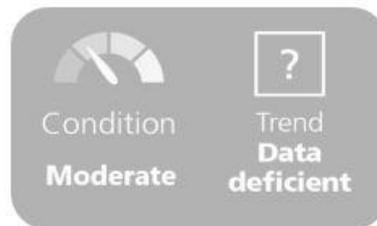
The **Bramfield** Groundwater Dependent Ecosystems monitoring site is situated one kilometre south of Bramfield. The site includes a remnant patch (approximately 16 ha) of Red gum (*Eucalyptus camaldulensis*) Woodland. The understory is dominated by native and introduced grasses.

The Bramfield site is in a Licensed Extraction Area. This means there are a number of users (including SA Water) that hold licenses to use a limited amount of water for drinking water supply and other private commercial purposes. Access to water extraction details can be [found on WaterConnect](#) in the relevant 2018 Groundwater level and salinity status report.

There is also extraction of water for stock and domestic purposes for which a water licence is not necessary. This extraction is assumed to be low compared to extraction for licensed consumptive purposes.

Red gum condition

Tree condition monitoring was undertaken in 2016 and repeated in 2018. In 2016 the average Red gum Condition Index (RCI) score was 0.49. In 2018 the average RCI score was 0.44, showing a 5% decline in Red gum condition over this period.



Adult Red gums assessed as in 'moderate' condition, during the 2016 GDE monitoring at Bramfield.



Bramfield site map. Note: yellow dots represent 50 surveyed trees.



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Climate assessment

Statistical analysis of air temperature, rainfall and groundwater depth indicates that this change in condition is likely due to the effects of climate variability. Average annual maximum air temperature at Elliston has increased by 1.6 degrees Celsius between 1962 and 2018.

Graphs on the right show:

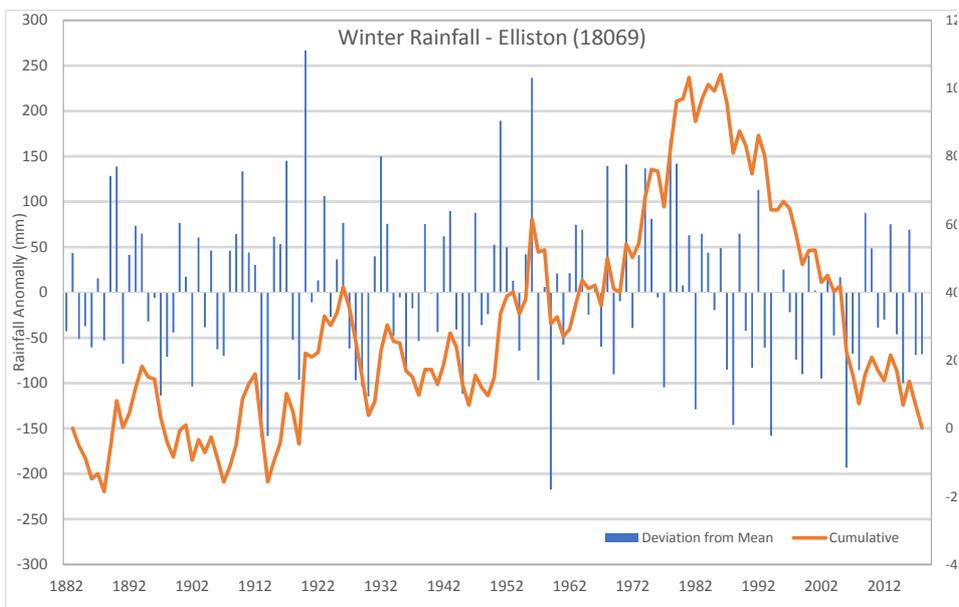
- The rainfall trend amounts are in decline since 1986 including from 2016 to 2018. It should be pointed out that we would rather have rainfall data from closer to the site but Elliston (10km away) was the closest rainfall station with an appropriate dataset. It must also be noted that it is thought that intense rainfall events maybe more important to Red gum health than changes in annual rainfall. This concept will need further data analysis into the future.
- Groundwater levels have seen a slight increase from 2016 to 2018.

Monitoring into the future

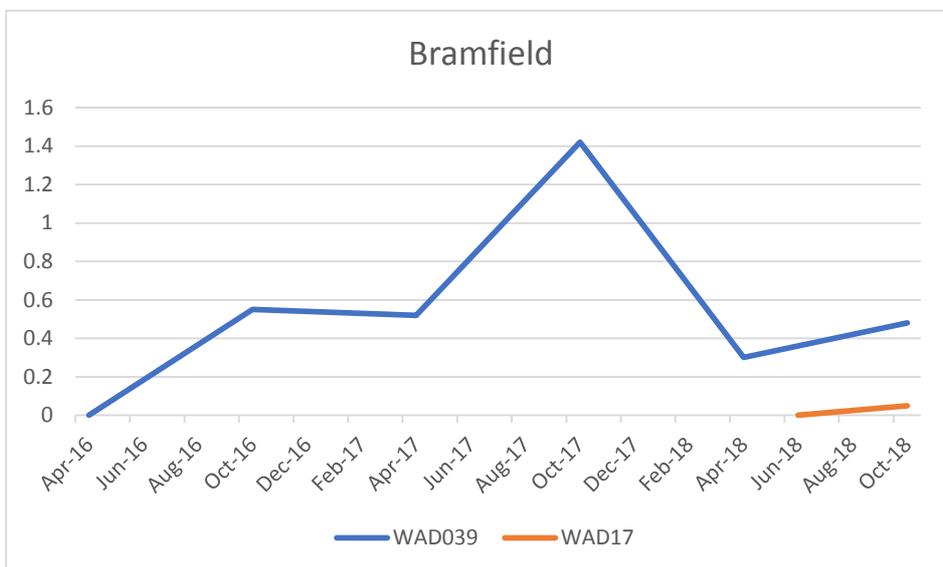
Tree condition monitoring will continue on a yearly basis. As time goes on more data will identify a trend if there is one.

In addition to more data, new monitoring infrastructure was installed at Bramfield in 2019 to improve the site specific accuracy of data collection. Additions include:

- an additional monitoring well
- a water level data-logger at one well
- a rain gauge to measure rainfall intensity and amount.



Graph 1 Winter rainfall from 1882 – 2017.



Graph 2 Change in groundwater levels at two wells, from 2016 to 2018.
(Note: all measurements are in metres)

For more information

Access the full report here: 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.

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