



# Outback Water Project

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RIEL  
Research Institute for  
the Environment and  
Livelihoods



# Outback Water Project - Introduction

- A Citizen Science Project
- MOU between TNRM, CDU, P&W and Tourism CA
- Soft roll out commenced December 2017
- Project launch on World Wetlands Day, 2<sup>nd</sup> February, 2018



# Outback Water Project – Project Resources

- Project Hub established at Visitor Information Centre
- Secondary hub at Araluen Centre
- Elders a pick-up & drop-off location for pastoral community
- Further packs distributed to a target audience (scientists, schools etc.) and via project partners



- Brochures
- Posters
- Pull-up banner
- Sample packs

# Outback Water Project - Brochure

Water is the basis of all life on Earth. Central Australia supports a restricted but significant range of freshwater systems that are used by native plants, animals and humans.

The water found in these freshwater systems varies in age, depending on its origin. Ground water, stored beneath the Earth's surface, accumulates over a long periods of time and may only slowly recharge from rainwater filtering downwards. By contrast, surface water collects from runoff directly following rainfall events.

Understanding the ages of water from individual sources will enable researchers to determine how these valuable natural assets can be most sustainably managed across the landscape. It can also assist with prioritising their conservation to benefit both plants and animals, and the people and enterprises that depend upon them.

## ABOUT THE PROJECT

The Outback Water Project is a collaboration between Territory Natural Resource Management, Charles Darwin University, Parks and Wildlife Commission of the NT and Tourism Central Australia, together with Citizen Scientists.

The project requires people to collect and provide water samples from various waterbodies around the MacDonnell Ranges in Central Australia. These samples will then be analysed by researchers in the environmental lab at Charles Darwin University.


Over time, this information will enable The Outback Water Project to create a map that will indicate the age of the water found in various waterbodies, and provide information on local evaporation rates, humidity, size of rainfall events and the mixing of groundwater and surface water sources.

## MORE INFORMATION

For more information about the project, or how to get involved, please see the dedicated Outback Water Project website at: [www.outbackwaterproject.com](http://www.outbackwaterproject.com)

For updates about the project, and to see some of the sample locations people have visited, see our Facebook page.

Feel free to share your photos or experience collecting a water sample to our Facebook page!

 [@outbackwaterproject](https://www.facebook.com/outbackwaterproject)  
[#outbackwaterproject](https://www.facebook.com/outbackwaterproject)

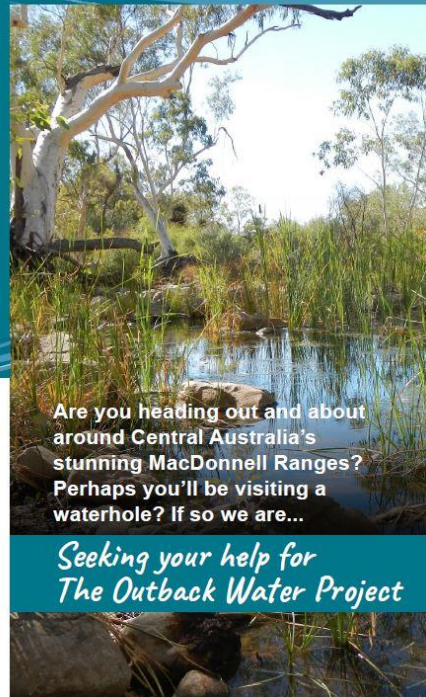
## CONTACT US

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This project is supported through funding from the Australian Government's National Landcare Programme.

## THE OUTBACK WATER PROJECT



Are you heading out and about around Central Australia's stunning MacDonnell Ranges? Perhaps you'll be visiting a waterhole? If so we are...

Seeking your help for The Outback Water Project

## HOW YOU CAN HELP

Citizen Scientists can collect a sample kit from our project hub at the Visitor Information Centre on Alice Springs 'Todd Mall'. These kits will contain vials which can be used to collect water samples from as many locations in the MacDonnell Ranges region as possible.

People are encouraged to also take a photograph of the waterhole that the sample was collected from, to provide visual recordings of the different types of waterholes across the region.

## WHERE YOU CAN HELP

We are seeking water samples from a variety of locations around the MacDonnell Ranges and surrounding areas in Central Australia.

Water samples can be collected from any freshwater body such as water holes, salt lakes, soaks, wetlands, clay pans, temporary lakes, rock holes, small permanent spring-fed streams and aquifers.

Many of the above waterbodies can be found on publicly accessible areas and are suited to water sample collection.

Please be aware however, that if you intend to take a sample from Aboriginal lands or a private /pastoral property, to please obtain permission from the appropriate authority / landholder prior to taking a sample.

## How to collect and return your sample kit

You can collect and return your sample kit from the following location:

**Alice Springs Visitor Information Centre**  
Todd Mall  
Alice Springs NT

**If you are out and about and run into an NT Park Ranger in one of the NT Parks, you can also return your water sample to them.**

If you have returned home before getting a chance to drop off your water sample, contact Jon Hodgetts at [jon.hodgetts@territorynrm.org.au](mailto:jon.hodgetts@territorynrm.org.au), who can advise you on how to submit your water sample.

## How to collect a water sample

To collect water from your chosen location, go to the water's edge;

1. Unscrew lid and fill vial with water from just under the surface
2. Try to take as clean a sample as possible i.e. free from significant plant or animal material
3. Replace lid
4. Fill out label with date of collection, a rough location if known, and GPS co-ordinates if possible (many smart phones have the capability to record GPS when taking a photo. Check the 'details' option usually seen when viewing the photo to see if a GPS location has been recorded.)
5. Affix the label to the vial
6. Please feel free to take a photo of the site and upload it using the details below

## How to upload photos of your water collection points

We'd love to see photos of your collection points where you gathered samples. All photos can be uploaded to [outbackwaterproject.com.au](http://outbackwaterproject.com.au)

Once you reach the website, simply click the 'Submit a photo of your sample site' button in the top right hand corner, then complete and submit the 'Photo Submission Form'.

**IMPORTANT:** Please make sure you have permission from the landholder BEFORE taking a water sample.

NT Parks are publicly accessible and approved their locations for this project, however samples from Aboriginal lands and private / pastoral properties need express permissions from the relevant authority / landholder.



# Outback Water Project – Media / Promotion

- ABC interviews aired on NT Country Hour & Alice breakfast show
- ABC piece-to-camera video – viewed over 5000 times
- 8CCC (local) radio interview
- Centralian Advocate article
- Newsletters including LfW, CDU, Tourism CA, CLMA
- A3 Laminated posters at National Parks
- Dedicated Facebook and Instagram pages
- Dedicated website; [www.outbackwaterproject.com](http://www.outbackwaterproject.com)



# Outback Water Project – Media / Promotion

- Red Centre NT markets at Yulara and Alice Springs
- Presentation to tour operators, St Philips School
- Fliers and posters at multiple businesses / organisations around town
- Registered with Alice Springs Town Council events, ICTV Play
- CSC Smart Seeds Challenge



# Outback Water Project - Media



Video credit; Katrina Beavan,  
ABC Country Hour

# Outback Water Project – Citizen Science

- Project page set up with Atlas of Living Australia
  - Engaged nationally with Australian Citizen Science Association
  - Led to media article with Australian Water Association
  - Helped project awareness outside of NT before visitors arrive in Alice Springs

## About the project

### Aim

To increase both scientific and community understanding of the importance of groundwater in maintaining waterholes in the MacDonnell Ranges Bioregion of central Australia through a citizen science water sampling project.

### Description

The project seeks Citizen Scientists to collect water samples from as many waterholes scattered throughout the MacDonnell Ranges Bioregion and surrounds in southern, central Northern Territory as possible. The water samples will be analysed in the environmental lab at Charles Darwin University and will measure the conductivity and stable isotopic composition (d18O and d2H) of each water sample. The conductivity will indicate how fresh or salty the water is. The stable isotopic composition will provide information on local evaporation rates, humidity, size of rainfall events and the mixing of groundwater and surface water sources. This information will allow us to understand the relative contributions of groundwater and surface waters in sustaining arid zone springs, rockholes, gorges and river pools.

### Project originally registered in

Atlas of Living Australia

 This project is contributing data to the Atlas of Living Australia.

## Get Involved!

### Program name

Citizen Science Projects

### Equipment

All equipment is provided in packs that can be collected from the Visitor Information Centre on Todd Mall, Alice Springs

### Tasks

Collecting a small vial of water (~50ml) from a waterhole in the vial provided and returning the sample to us via an NT Park Ranger or to the Visitor Information Centre on the Todd Mall, Alice Springs

### You can participate in this project in

Australia

### UN Regions

Oceania

### Contact name

Jon Hodgetts

### Contact Email

[jon.hodgetts@territorynrm.org.au](mailto:jon.hodgetts@territorynrm.org.au)

Get Started

Social Media: 

Family/Child Friendly | Free of Cost | Difficulty: Easy



# Outback Water Project – Results to date

- Over 200 received by CDU in Darwin to October 2018
- Two summary reports (April & November) compiled by Jenny Davis
- 86 distinct water sources have been sampled from
- Range of salinity levels and isotopic content
- Some very fresh groundwater dependent sites
- Some purely rain water fed sites
- Majority a mixture of both ground and surface water

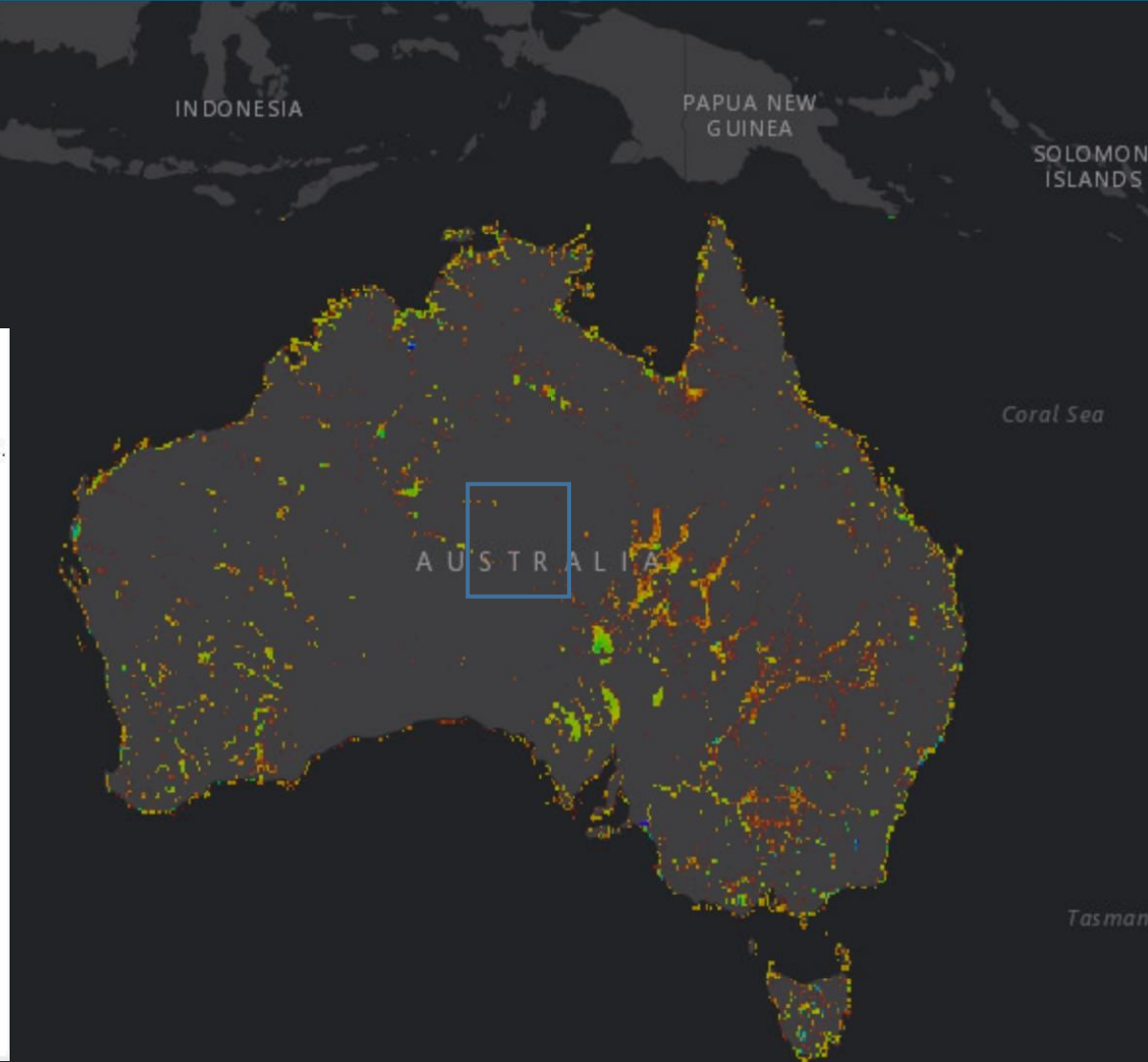
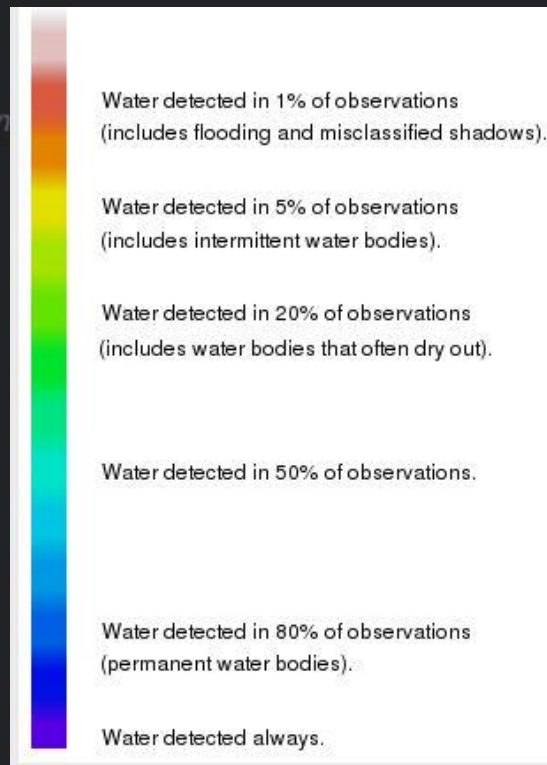


About

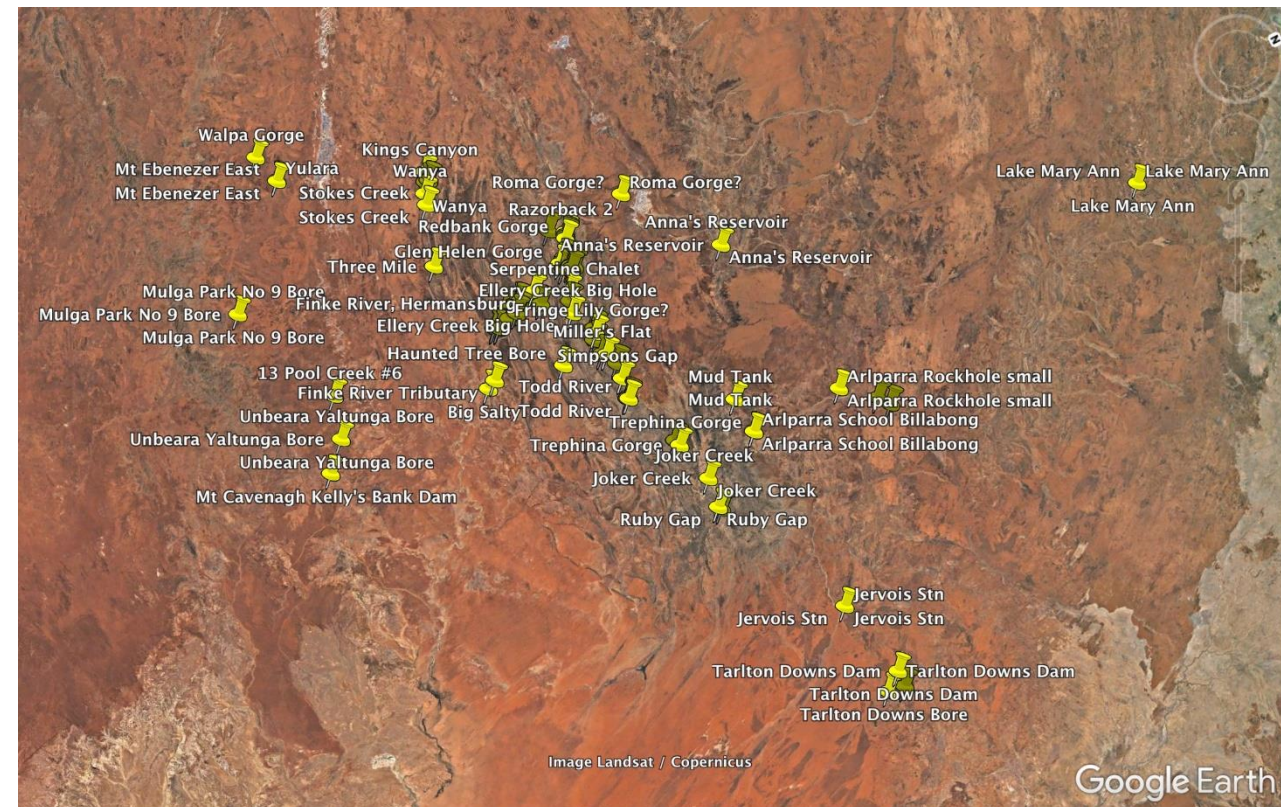
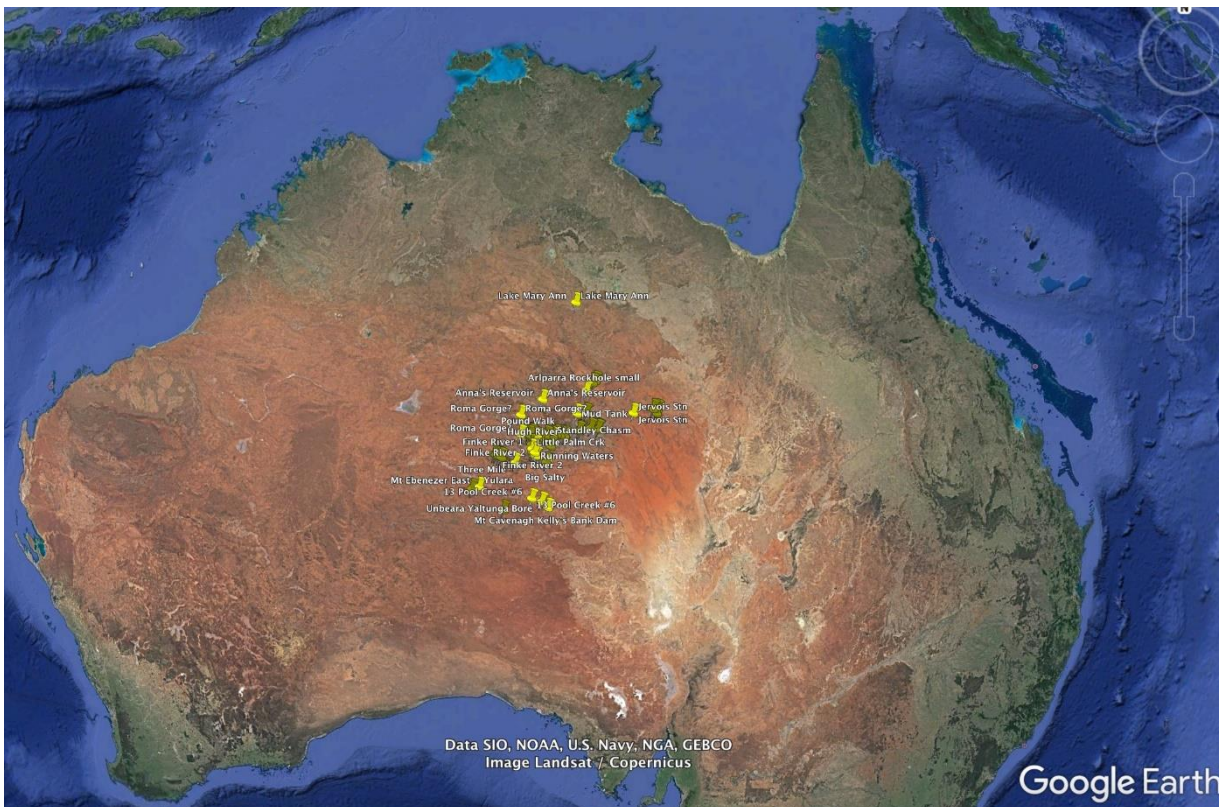
Layers

Legend

Maps



# Outback Water Project –Locations to date



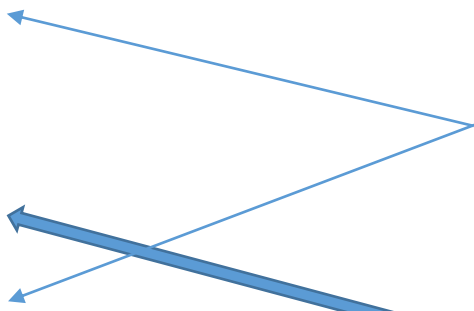
# Outback Water Project - Conductivity

Site	Conductivity (mS/cm)
Watarrka National Park- Penny Springs	0.09
Chain of Ponds-John Hayes Rockhole	0.10
Watarrka National Park- Penny Springs	0.11
Tributary (5km north of Palmer River), Stuart Hwy	0.15
Wiggly's Waterhole	0.15
Chain of Ponds- John Hayes Rockhole	0.16
Watarrka National Park - Wanya Rockhole	0.17
Watarrka National Park - Wanya Rockhole	0.22
Trephina Gorge	0.27
Jay Creek - Fish Hole	0.34
Ellery Creek Big Hole (Outback Elite Tours)	0.35
Todd River, Alice Springs	0.38
Yulara Tap Water	0.40
Ormiston Gorge (Outback Elite Tours)	0.46
Watarrka National Park -Stokes Creek	0.70
Reedy Rockhole	0.76
Watarrka National Park -Stokes Creek	0.77
Clay pans	0.77
Drinking water guideline	0.80
Simpson's Gap	1.16
Simpson's Gap (Outback Elite Tours)	1.39
Kings Canyon Tap Water	1.50
Finke River	1.54
Three Mile H6NBWR7	1.80
Glen Helen Gorge (Outback Elite Tours)	3.26
Finke River -Two Mile (Outback Elite Tours)	10.7
Finke River -Two Mile (Outback Elite Tours)	11.6
Finke River - Two Mile	15.0
Pioneer Creek Waterhole	15.8
Pioneer Creek Waterhole	17.6
Big Salty H6NBWR7	18.4

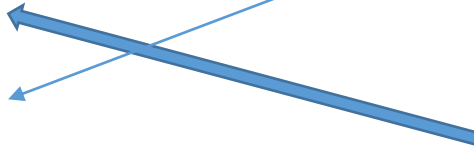


A groundwater dependent waterhole

A rainwater dependent waterhole



Tap water!

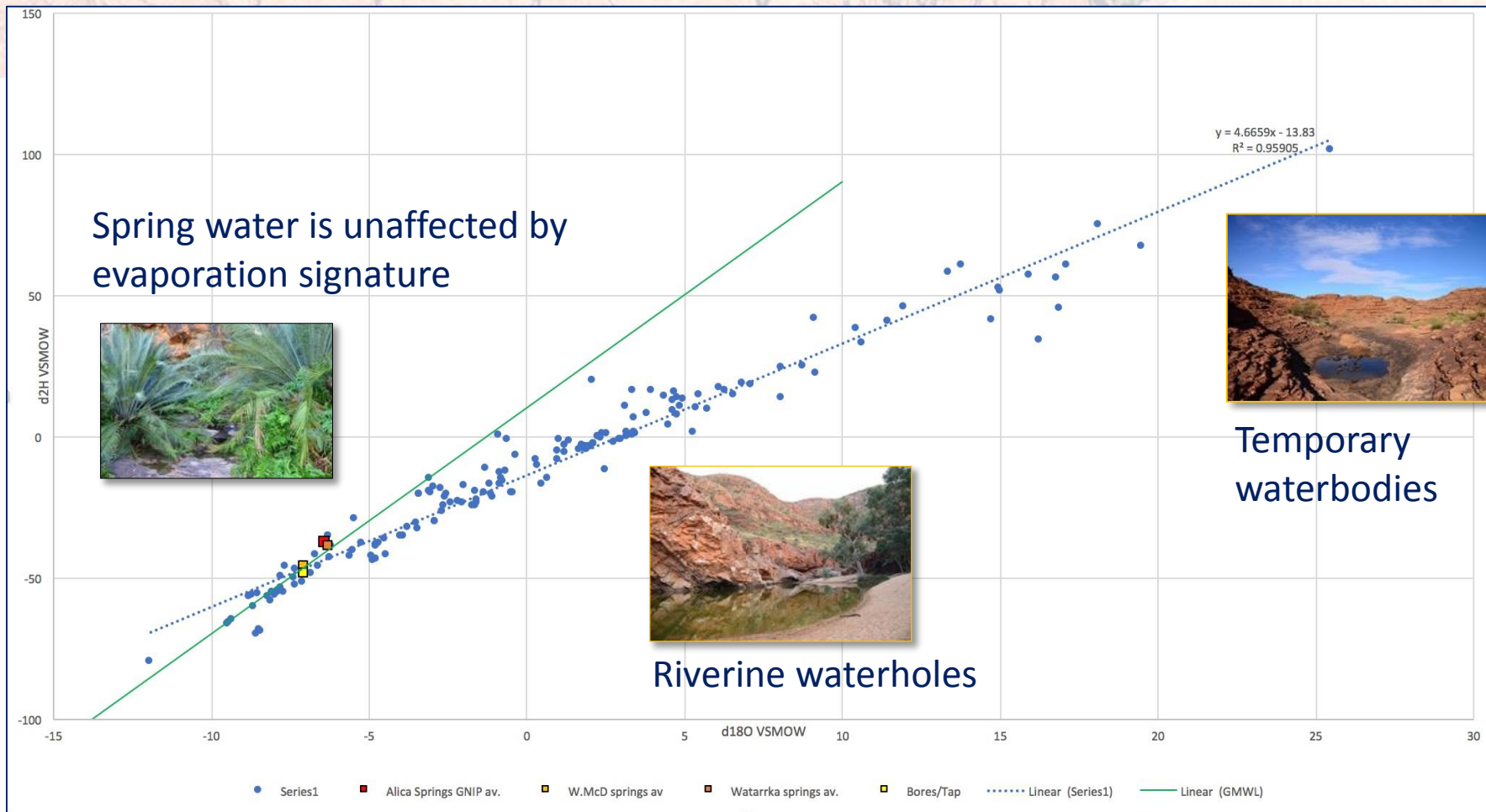


Drinking water guidelines require water to be 0.8 mS/cm or lower to be fit for human consumption



Fed by a salty aquifer associated with Pioneer Mound Springs

# Outback Water Project – Isotope Plot



- Measures proportions of Oxygen & Hydrogen isotopes
- Water's own 'fingerprint'
- Allows broadly for comparative aging within our samples
- Unrelated to conductivity



# Outback Water Project – Successes

- Genuine interest from many members of the public
- Hundreds of sampling packs have been distributed (~1000 vials)
- A broader range of waterholes sampled than expected
- Some participants are collecting multiple samples over time
- Schools engagement
- New partnership engagement with Tourism CA
- Feeding in to a bigger discussion about water resources in the region

# Outback Water Project – What next?

- Intention to maintain project for a further 200 samples to be analysed
- Looking to extend the range
  - Is this something that has potential in your region?
  - What would you want to learn?
- Follow us on social media
  - [www.outbackwaterproject.com](http://www.outbackwaterproject.com)
  - Facebook, Instagram





# Outback Water Project – Acknowledgements;

Professor Jenny Davis – Charles Darwin University

Dr Niels Munksgaard – Charles Darwin University

Everyone who has participated!

And lastly, our project partners:

