



## Groundwater Dependant Ecosystems: Berry Springs Aquifer

### What is a Groundwater Dependent Ecosystem?

They are ecosystems that have evolved to exploit all physical resources, most of Australia is either semi arid or has seasonal drought. Therefore if groundwater is available within reach ecosystems will develop that are to some extent dependant upon it.

Ecosystems that are strongly groundwater dependant occupy only a small fraction of the Australian continent. However due to the Territories unique climate and landscape, groundwater plays a significant role in maintaining many ecosystems in the Top End and Arid Region.

### Dependant or Not?

Not all ecosystems draw on groundwater directly. Some GDE's rely on groundwater below the surface but within the root zone. These types of ecosystems include some wetlands forests and woodland forests.

The most dependant type of ecosystems are those that rely on the discharge of groundwater to the surface – such as springs, rivers or wetlands.

Rivers and creeks that flow all year are generally groundwater dependant because a significant proportion of their daily flow is derived from groundwater discharging into the waterway.

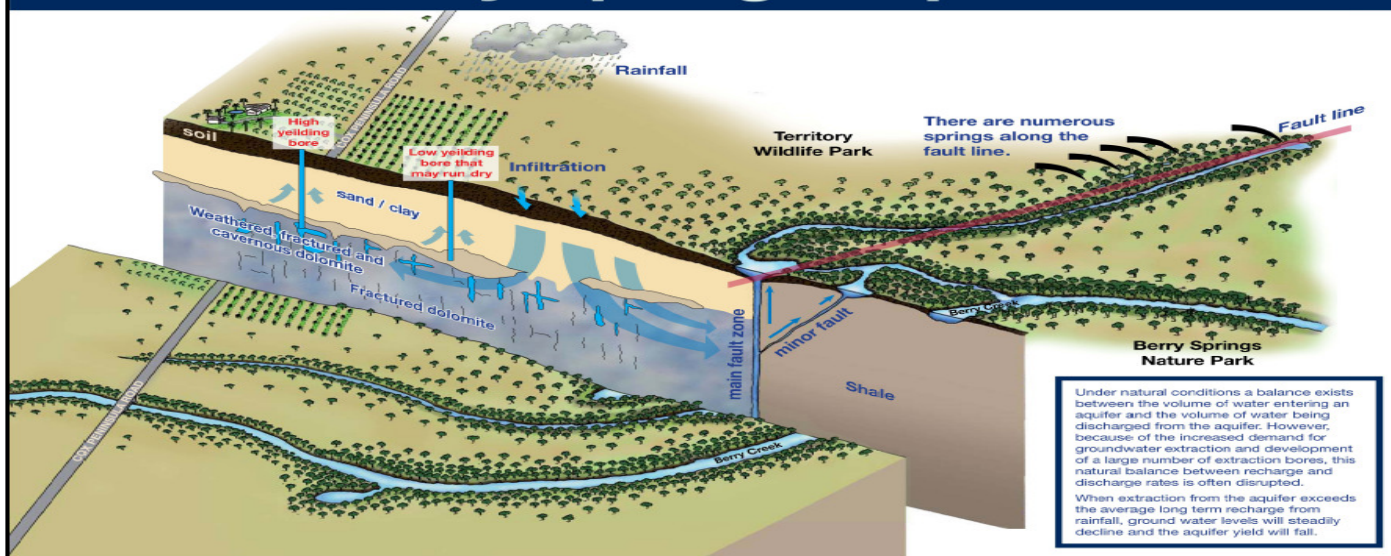


### Where Are The Most Dependant Ecosystems?

1. Berry Springs – is a natural discharge point from the underground dolomite aquifer.
2. Blackmore River - base flow is vital to the characteristic of in stream and near stream ecosystems, flora and fauna have a direct dependence on this available water.
3. Darwin River – base flow is vital to the characteristic of in stream and near stream ecosystems, flora and fauna have a direct dependence on this available water.
4. Parsons Spring – is a natural discharge point from the underground dolomite aquifer.
5. Twin Farm Springs – is a natural discharge point from the underground aquifer.
6. Berry Creek – base flow is vital to the riverine habitats and the animal's that are dependant upon it.
7. Lake Deane – depends upon high groundwater levels to maintain its environment.



# Berry Springs Aquifer



## Berry Springs

Berry Springs is one of the natural outlets of the Berry Springs Aquifer, a small underground water basin. Some 1.8 billion years ago, limey mud was deposited in a shallow sea. It subsequently hardened to form a rock known as dolomite, a type of limestone. The beds were then folded into a basin like shape, forming a natural reservoir for underground water.

The water which seeps into the ground in the Top End is naturally acidic and is corrosive to dolomite. Over thousands of years, the dolomite has gradually dissolved leaving a sponge like rock capable of holding large amounts of water.

### Major threats include:

- Changes in groundwater levels,
- Increasing changes in climate and seasonal weather patterns,
- Increasing demands of groundwater and surface water for domestic, horticultural, agricultural and industry use.

## How Are They Impacted?

The most poorly understood threat to GDE's arises as an unintended consequence of groundwater pumping/extraction. When groundwater is extracted at a rate that exceeds the rate of recharge the water table drops. This in turn reduces the flow of groundwater into nearby rivers, creeks and wetlands thereby causing these systems to become water stressed.

## Water Resource Management

While annual monsoonal rainfall in the Top End generally assures full recharge of aquifers, the requirements of all Groundwater Dependent Ecosystems must be maintained all year round. In the Northern Territory, unless a Water Allocation Plan declares otherwise, strong attempts are made to limit total water extraction from an aquifer or river to no more than 20% of recharge. This leaves 80% of all recharged retained for environmental use.

### Further Information:

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