

Alice Springs Water Resource Strategy 2005

Groundwater Dependent Ecosystems

What are groundwater dependent ecosystems?

Groundwater dependent ecosystems (GDEs) are plant and animal communities that depend partly or completely on groundwater.

Examples of GDEs in Central Australia include spring-fed wetlands, vegetation growing along some watercourses, animal and plant communities in areas where groundwater is close to the surface, and even animal communities that may live in aquifers.

Why do GDEs matter?

Some species which are groundwater-dependent have cultural significance. An example may be the River Red Gums growing along sandy water-courses, however not all River Red Gums rely on groundwater.

In arid Australia where surface water is scarce, groundwater may play a very important role in maintaining biodiversity.

The tiny animals and bacteria living in aquifers probably have an important role in consuming organic matter entering groundwater and maintaining water quality.

GDEs may be useful as bio-indicators, that is, they can be used to indicate the health of the environment.

The Northern Territory Government has obligations in law and through intergovernmental agreements to protect biodiversity and provide water for environmental needs. The Territory's *Water Act* requires that water allocation plans must include an allocation to the environment.



Are GDEs threatened?

Extraction of groundwater may lower the water levels in aquifers, or alter the direction of groundwater flow or change the water quality. All these effects may have an impact on GDEs. However, knowledge about GDEs is very limited, so effects of water extraction are largely unknown.

What research is needed?

Scientists are not sure which ecosystems are ground-water dependent, how much water is needed to maintain GDEs, or how sensitive they may be to changes in water availability or quality.

Action!

There are a number of steps we can take to protect groundwater dependent ecosystems:

- Identification and mapping - where are the GDEs?
- Quantification of water requirements - how much water do GDEs need?
- Assessment of vulnerabilities - what are the effects of water extraction?
- Allocation in water planning – what is the appropriate allocation needed to avoid deleterious change in GDEs?
- Knowledge gaps - what research is needed to improve understanding of environmental water requirements?

