# How did Aboriginal peoples manage their water resources

For the 60,000 years that Aboriginal peoples have lived in Australia, water has played a critical role—not just for survival in an often arid and harsh environment but also for its significance in Aboriginal culture and identity. Water helped in defining language boundaries and ceremonial places and also underpins many land management practices[1].

Dreaming stories across Australia show the connection of ancestral beings to cultural stories related to water sources. Many such stories highlight the role of spirits in creating sources of water—rivers, creeks, rock wells, lakes, lagoons, seas and springs—and the ongoing supply and control of these watercourses by ancestral spirits and creation beings. Adults memorised the sequence and locations of water supplies and taught their children while travelling along the chain of water sources[2].

Aboriginal peoples used the presence of particular birds, animals and plants to find water[3]. For instance, they have long recognised that, in some areas, many species of bird, animal and plant life could not exist without a constant water source; similarly, they know that following certain other species during seasonal movements of animals would lead the trackers directly to water[4]. Birds such as the zebra finch, striated pardalote and red-browed pardalote, for example, are excellent at finding water in the desert[2].

Key features of traditional knowledge about locating and using water include oral instruction, mapping of water sources and setting up markers and identifiers such as scar trees and artwork in the environment[5][8]. These markers also served as signposts by which Aboriginal peoples understood and recognised the custodianship of the water source and the rights and responsibilities of visitors to these sites.

In some areas, artwork and carvings on trees that were thousands of years old pointed the way to water sources that were difficult to find. Over the past two hundred years, many of these trees and artworks have been removed as a result of land clearing and farming.

Traditional Aboriginal water collection and storage practices have evolved for many centuries and continue into the present. Evidence of Aboriginal people using and protecting precious water sources can still be found in many places throughout Australia despite colonisation and alienation from traditional lands[1][3][6].

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[1] Rose, DB 1996, *Nourishing Terrains: Aboriginal Views of Landscape and Wilderness*, Australian Heritage Commission, viewed 2 August 2018, <http://155.187.2.69/heritage/ahc/publications/commission/books/pubs/nourishing-terrains.pdf>.
[2] Bayley, IAE 1999, 'Review of how indigenous people managed for water in desert regions of Australia', <https://www.rswa.org.au/publications/Journal/82(1)/82(1)bayly.pdf>, *Journal of the Royal Society of Western Australia*, 82:17-25, viewed 3 August, 2018
[3] *Through our eyes: Finding water in an arid environment with Badger Bates* 2014, video recording, Western Local Land Services.
[4] *Through our eyes: Finding water in a dry creekbed with Badger Bates* 2014, video recording, Western Local Land Services.
[5] Queensland Department of Natural Resources and Mines, 2016, 'Great Artesian Basin social and cultural water uses', https://www.dnrm.qld.gov.au/__data/assets/pdf_file/0010/1039438/gab-factsheet-social-cultural-water-issues.pdf, accessed 5 August 2018.
[6] *Through our eyes: Gilgais and caring for water with June Barker* 2014, video recording, Western Local Land Services.

The main water sources for Aboriginal people across the Australian continent were waterways and lakes. However, a range of ingenious water collection and storage methods were, and still are, used in Aboriginal communities. Small-volume water sources exploited by Aboriginal people include natural features such as rock holes, and living creatures such as frogs.

## Rock holes

Rock holes are hollows on hard layers of rock surfaces that don't allow the water to soak in (impermeable) so the water collects. Some rock holes are naturally occurring, while others are made or enlarged intentionally using different types of abrasive rocks. Another method of breaking rock is to light a fire on the rock surface then rapidly cool it with cold water[7]. Rock holes are often covered with branches or rock slabs to reduce evaporation and keep animals out[2].

## Tree roots

Many tree roots, particularly those of Mallee eucalypts, store water. When these tree roots are dug up and cut open, water flows freely from them[2].

## Claypans

After rain, water is often found in claypans—depressions in hard almost impermeable layers of sediments that limit the amount of water that can soak in. These water sources are generally short-lived because the water quickly evaporates in the heat[2].

## Soaks

Water will usually seep into hollows in freely permeable sediments (that allow water to readily soak in). Holes dug into these sediments can provide water. Dry river beds and depressions commonly contain soaks[2].

## Impoundments

Dam construction, using clay traditionally dug with wooden tools, is a water storage method still used today in some Aboriginal communities[2].

## Tree trunk hollows

Water can accumulate in trees where sections of decay occur above ground level. In tropical and semi-tropical rainforest regions, sections of fallen trees that have softened and become sponge-like commonly contain water[2].

## Dew

Another water source is dew droplets on vegetation. Large green leaves are fashioned into bowl and cup shapes and left out overnight for water collection. The gathered dew can then be transferred to wooden coolamons for storage. Coolamons are curved carrying vessels made from wood or bark that are used to carry water, bush tucker and even to rock babies to sleep[2].

## Mound springs

This type of spring is fed by carbonated water, which rises to the surface through cracks in the overlying rock. When the water reaches the surface, dissolved calcium carbonate (lime) comes out of solution and is deposited at the exit points, forming the mounds that give the

[7] Michael, D & Lindenmayer, D 2018, *Rocky outcrops in Australia: Ecology, conservation and management,* CSIRO Publishing.

springs their name. The Great Dividing Range in Queensland, near the south-eastern edge of the Great Artesian Basin, has fine examples of this form of natural water source[2].

## Frogs

Water-holding frogs are dug up from where they lie dormant underground during the summer heat. The water in their body is squeezed out into a thirsty mouth. The frog is carefully re-buried for next time[2].

## Moss clumps

Clumps of moss growing on the ground, on rocks and on tree roots in rainforests are removed carefully, drained of the moisture clinging to their fibres, then put back into place.

## Rock wells

Open entries into fractured rock aquifers (underground layers of water-bearing rock) are referred to as rock wells. Aboriginal clans used these rock wells for their precious water stores and protected the water from the elements and animals by covering the well with rock slabs or branches[8].

[8] Skatssoon, J 2006, *Aboriginal people built water tunnels*, <http://www.abc.net.au/science/news/ancient/AncientRepublish_1590192.htm>, accessed 5 August 2018.