

The Commonwealth Environmental Water Holder acknowledges the Kurnu-Baakandji traditional owners and respects their continued connection to water, land and community. We pay our respects to them, and their cultures, and to their elders both past and present.



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Australian Government

Commonwealth Environmental Water Office

## LOOKING AFTER TOORALE'S WILDLIFE AND PLANTS

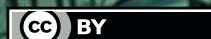


Above: Kurnu-Baakandji community members Wayne Knight, Badger Bates, Dennis Edwards and Bryan Knight in a front of a scar tree identified during a cultural survey of Toorale.  
Photo: Sarah Martin

Cover: Junction of the Warrego and Darling Rivers.

Back cover: Toorale's welcome sign.

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# Toorale is significant for the environment, Aboriginal people and pastoral communities

Toorale Station was bought by the government in 2008 for its heritage, both Aboriginal and agricultural, environmental values and water recovery. Toorale is now a National Park and State Conservation Area, and is jointly managed by the NSW National Parks and Wildlife Service and Traditional Owners, the Kurnu-Baakandji.

Toorale is at the junction of the Warrego and Darling Rivers, and includes the Warrego River Western Floodplain. These three features are important as together they provide diverse habitats and ecosystems for a vast array of frogs, fish, plants, waterbirds and aquatic insects.

Toorale is part of a boom and bust landscape, which comes to life after rain and flooding. Seasonal wetlands support an abundance of birdlife such as ibis, freckled ducks, spoonbills, egrets, pelicans, brolgas, and nationally threatened bird species like the Australian painted snipe, and Australasian bittern.

A range of native fish species live in the rivers, including bony herring, golden perch, Hytri's catfish and Australian smelt and the nationally threatened silver perch and Murray cod. Other significant species that call Toorale home are the greater long-eared bat and interior blind snake.

Toorale is also rich in Aboriginal and non-indigenous heritage. The land, water, plants and animals of Toorale are highly significant to the Kurnu-Baakandji people. The Warrego and Darling rivers and Western Floodplain are central to Kurnu dreaming stories and cultural practices. On Toorale there are over 500 known Aboriginal cultural sites, including scar trees, quarries, worked stones, middens, burials, stone arrangements and

ovens that demonstrate their occupation for thousands of years. Connections to country are today maintained through the ongoing role the Kurnu-Baakandji people have in the management and use of Toorale's land and water.

Toorale, which began operating in 1850, was also one of the former legendary pastoral stations along the Darling River. It has a long history of pastoral and irrigation development, including having the first shearing shed in Australia to install electric lighting. Toorale was family-owned for over 50 years, and since then, changed hands many times. The Kurnu have lived, worked and continued cultural practices throughout Toorale's history.



*Agricultural machinery on Toorale*



*Flock of ibis on Western Floodplain*

# Environmental water is dedicated to improving the health of our rivers, floodplains and wetlands

Commonwealth environmental water is managed in partnership with state government and local delivery partners to improve connections between rivers, floodplains and wetlands.

Commonwealth environmental water is particularly used in sites that support nationally threatened species under the *Environmental Protection and Biodiversity Conservation Act 1999* and state-based legislation, as well as migratory birds protected under international agreements. We are also working toward achieving environmental outcomes as outlined in the Basin-wide Environmental Water Strategy (part of the implementation of the Murray-Darling Basin Plan).

## Summary of longer-term outcomes under the Basin-wide Environmental Watering Strategy



Increase freshes and bank-full events in the Barwon-Darling. These help drown out weirs to allow animals and material to move up and down the river (longitudinal connectivity) and also connect the river and in-stream habitat features such as benches, large wood, anabranches and the floodplain (lateral connectivity).

A fresh event describes an increase in levels of the river beyond base flow, but does not fill the river channel or go over the bank.



Maintain current forest and woodland vegetation, including river red gum, blackbox, coolibah, lignum shrublands and non-woody vegetation communities. Increase growth for vegetation communities within river corridors, wetlands and low-lying floodplains.



Maintain the diversity of waterbirds and increase the population through improved breeding opportunities.



Restore and maintain the conditions needed for native fish spawning, movement between areas, and healthy fish communities.



Western Floodplain during drought



Kangaroos on Western Floodplain



Spoonbill and ibis



# Our partners

**The best approaches to environmental water management involve local knowledge and the latest science.**

Following the purchase of Toorale Station, its water entitlements were transferred to the Australian Government, and are managed by the Commonwealth Environmental Water Holder in consultation with NSW National Parks and Wildlife Service. These water entitlements are now known as environmental water.

Scientific monitoring of the effects of environmental water at Toorale is conducted by Eco Logical Australia, in partnership with the University of New England and the Department of Primary Industry-Fisheries. These organisations provide advice on what is being achieved with environmental watering.

Please contact your local engagement officer, Adrian Clements in Dubbo, NSW to learn more about Commonwealth environmental water use at Toorale.

## **Adrian Clements**

Local engagement officer – Dubbo, NSW  
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Toorale is open to visitors who can now experience the environmental benefits that have occurred since becoming a national park and focus on of targeted watering actions. For more information on visiting Toorale see: [www.nationalparks.nsw.gov.au](http://www.nationalparks.nsw.gov.au)



*Brolga. Photo: L. Copeland*



*Taking photos of ibis on Western Floodplain*



*Central netted dragon. Photo: L. Copeland*



*Monitoring the effects of environmental watering*



# TOORALE NATIONAL PARK AND STATE CONSERVATION AREA



Australian Government  
Commonwealth Environmental Water Office

## Environmental watering at Toorale

Toorale is located at the junction of the Darling and Warrego Rivers approximately 65 km south-west of Bourke, in north-west NSW. It has three significant features, the Warrego River, Darling River and the Warrego River Western Floodplain.

After heavy rainfall, environmental water flows into Toorale from the Warrego and Darling rivers, making it possible to direct water to improve conditions for Toorale's birds, frogs, fish and native vegetation.

Since the purchase of Toorale, environmental water has been used to help both the local and downstream environments. The amount of water available to use changes with the boom and bust cycles experienced across the region. Toorale was dry in 2014-15, so only a small amount of environmental water was delivered. But the large amounts of rain and river flows over winter and spring 2016, has meant more environmental water was delivered.

This table shows environmental water used at Toorale since 2008.

Year	Amount of water used (rounded to whole megalitres - ML)
2016-17	25,845 ML
2015-16	73 ML
2014-15	396 ML
2013-14	1,293 ML
2012-13	8,823 ML
2011-12	17,826 ML
2010-11	7,672 ML
2009-10	37,992 ML
2008-09	11,400 ML
<b>Total</b>	<b>111,320 ML</b>

For more information on environmental watering in Toorale, please visit [www.environment.gov.au/water/cewo/catchment/northern-unregulated-rivers](http://www.environment.gov.au/water/cewo/catchment/northern-unregulated-rivers)

Image credits, clockwise from top middle:

- Brolgas on the Western Floodplain. Photo: L. Copeland
- Hyrtl's catfish. Photo: G. Butler
- Junction of the Warrego and Darling Rivers.
- Darling River at Toorale in early 2016. Photo: D. McKenzie
- 2015 Azolla outbreak on the Darling River. Photo: Ben Vincent
- Coolibah tree supporting glossy ibis nests with lignum in the background on the Western Floodplain. Photo: Iris Tsou
- Seed shrimp. Credit: Eco Logical Australia
- Spotted marsh frog at Boera Dam. Photo: L. Copeland
- Inundation on the Western Floodplain in December 2016. Photo: B. Martin

Scientific monitoring shows that water delivered at Toorale provides food, habitat and breeding opportunities for many native fish, waterbirds, frogs, plants and other wildlife

Here are some of the key results achieved from environmental watering in recent years. Full monitoring reports are available each year at [www.environment.gov.au/water/cewo/catchment/northern-unregulated-rivers/monitoring](http://www.environment.gov.au/water/cewo/catchment/northern-unregulated-rivers/monitoring)

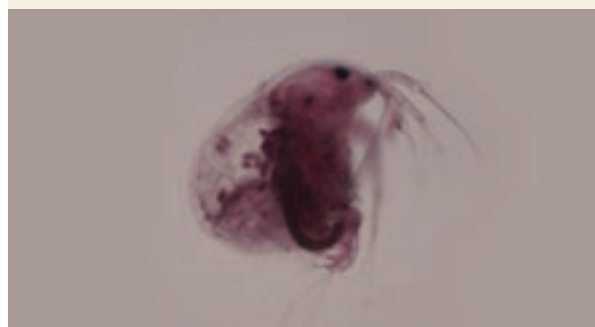
The large amount of rain and runoff during winter and spring 2016 flooded a large proportion of the Western Floodplain. This was the most significant inundation since the 2011-12 floods and early monitoring has found bird and frog breeding and very good plant growth.



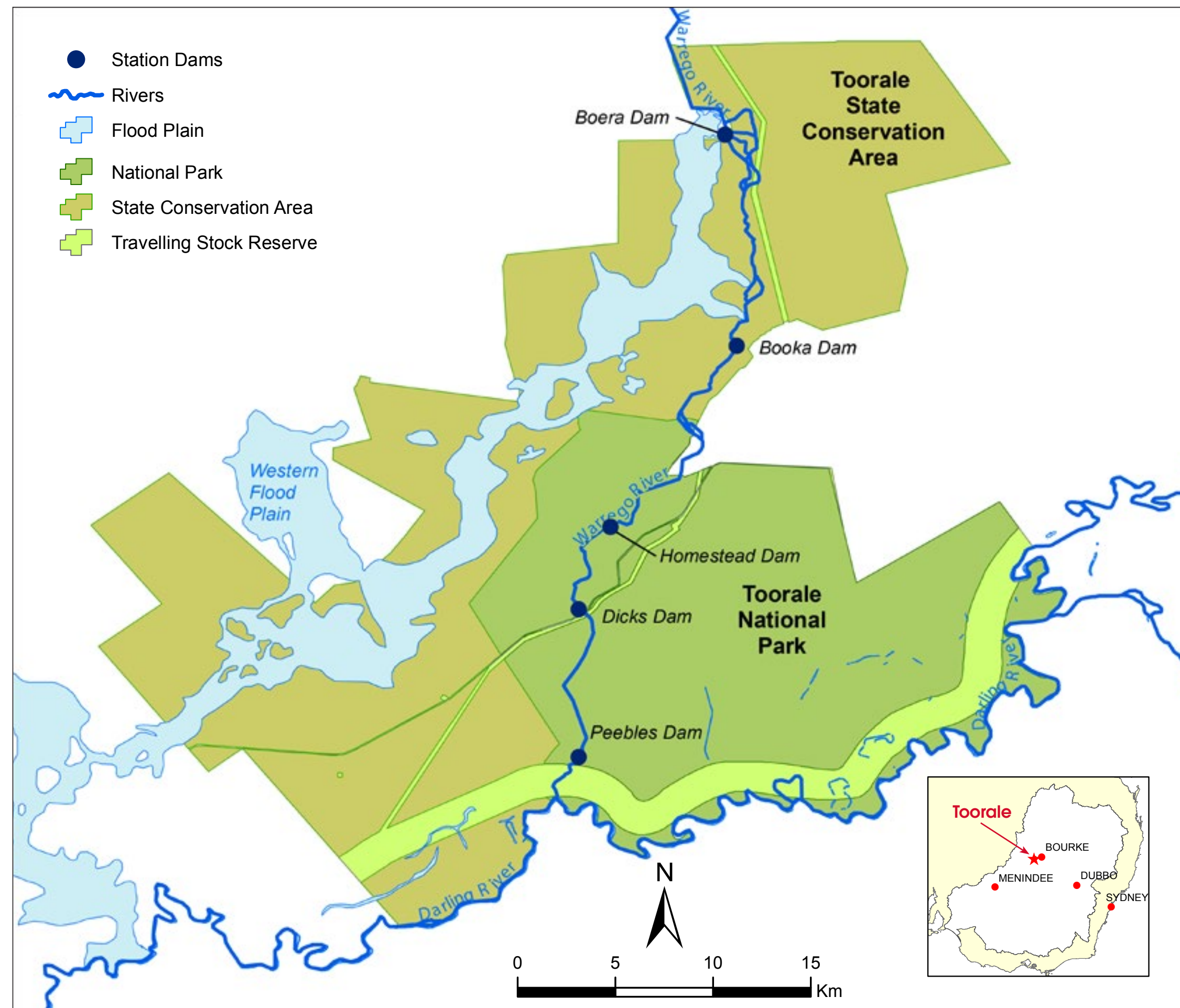
Eight frog species were recorded on the Western Floodplain in 2015-16. Barking frog, spotted marsh frog, Peron's tree frog and desert frog benefitted from floodplain inundation in 2014-15.



Inundation of the Western Floodplain in 2014-15 helped the survival and breeding of a diverse and unique range of microinvertebrates including copepod crustaceans, seed shrimps and roundworms, which are the base of Toorale's food web.



37 hectares of key plant communities on the Western Floodplain were inundated in 2014-15. This helped plant diversity and cover, including supporting the growth of native herb species such as river mint and slender knotweed.



There were 87 bird species observed in the Warrego River and Western Floodplain zones in 2015-16. Waterbird numbers and diversity were higher on the Warrego River than the floodplain, which was not unusual given the dry year. The eastern great egret, black fronted dotterel, grey teal, pink eared duck, herons, brolgas and Australian grebe all benefitted from the flooding of the Western Floodplain in 2014-15.



Even though there were only small environmental flows in the Warrego River in 2015-16 there was enough water to provide connectivity along the river's length and with the Darling River. These flows resulted in breeding and recruitment of several native fish species including golden perch and Hyrtl's catfish.

## The Warrego River

The Warrego River stretches 1000 km from Queensland to Toorale where it joins the Darling River, and typically experiences periods of no flow. When it does flood, water spreads out across the large Western Floodplain supporting a diverse range of plants and animals.

Environmental water from the Warrego River is managed within Toorale at Boera Dam. Here, water can be released to flow down the Warrego River, redirected onto the Western Floodplain or split between the river and floodplain.

Leaving water in the Warrego River connects waterholes allowing for fish and other animals to move, improve water quality, and contribute water in the Darling River. Watering the Western Floodplain increases the habitat available for waterbirds, native fish, frogs, insects and other wildlife and plant diversity and growth. In large watering events, it can also increase connection between the Western Floodplain and the Warrego River.

## The Darling River

The Darling River connects the northern and southern ends of the Murray-Darling Basin. It begins upstream of Bourke and eventually enters the River Murray at Wentworth. Water in the Darling River supports birds, native fish, plants and other wildlife all the way to the River Murray.

Water left in the Darling River provides variability in flows, connectivity along the length of the river and wildlife's access to habitat.



From the large rainfall and river flows in winter and spring 2016, over 8,000 ML of Commonwealth environmental water was used in the Darling River to enhance the natural changes in river height.



Commonwealth environmental water helped break-up an outbreak of the floating aquatic weed, Azolla, on the Darling River in spring 2015, preventing what potentially could have been a reduction in water quality.



In 2015-16 Commonwealth environmental water flowing along the Darling River helped native fish access habitats such as snags, benches and anabranches, and maintain good water quality through the year.