



Speaking up for billabongs

So what is a billabong I hear you ask ??

A billabong is a place where a swagman sits and waits until his billy boils. They are an ingrained part Australian Folklore and First Nations cultural history. They are truly unique.

Why are Billabongs Special?

A billabong is a unique type of wetland near a river with a big pool or lagoon that was shaped by the river long ago. They usually have shady trees like big old river red gums or coolibahs around the edge and can be characterised by their wetting and drying phases. Most don't always have water in them. They are their own individual ecosystems.

The most common type of billabong is what is technically defined as an oxbow lake. These form when a meandering river changes its course and leaves part of the old channel stranded. River channels can move their position when big floods erode their banks and deposit sediment in parts of the old channel. The name is also applied to deep pools in channels through the floodplain that become an extra route for the river when its flows are very high. To fill with water, billabongs need their river to overflow through a connecting channel – some require a very high flow, others need a small flood.

Why the need to Speak Up For Billabongs

In the current water management decision making process the specific needs of billabongs have for too long been overlooked. This needs to change to

ensure that these unique ecosystems can continue to be part of our cultural landscape. The neglect needs to stop. Billabongs can hold water for a long time. They are vital life-sustaining places in central and western New South Wales and across Australia and have high cultural significance for First Nations communities.

These bodies of still water provide important environmental values that support a range of native wildlife including fish, waterbirds, turtles, frogs and other aquatic species while also supporting the fringe vegetation such as river redgums, coolibahs and coobahs. These in turn provide feeding and breeding habitat for land-based birds and mammals. They all need access to water, especially in a drought.

The still water environment is distinctly different from flowing rivers with variable water chemistry, accumulation of organic matter on the bottom of the billabong and often connection to groundwater. Zooplankton and macroinvertebrate communities can be quite distinct from those occurring in flowing rivers.

This newsletter is the first of a series on billabongs: it has a specific focus on the Barwon-Darling. Follow up editions will look at the Southern Basin issues and provide more detailed information on the ecological and cultural values of the iconic Aussie Billabong.



Billabongs



Billabongs are the heart of our rivers — protect their flows before it is too late

Our billabongs, wetlands and floodplains are not separate from the river. They are part of the river — and the rules governing water must recognise that. “Billabongs are the heart of our Darling Baaka River, of all our big inland rivers that meander across the plains.”

Billabongs are much more than beautiful places beneath old River Red Gums and Coolabahs. When they connect with the river, they become nurseries, refuges and feeding grounds for native fish, waterbirds, frogs, turtles and countless smaller organisms. They are also part of the natural machinery that keeps a river ecosystem functioning.

Our great inland rivers are like enormous living organisms that have evolved over millions of years. Their plants and animals are interconnected, with flows delivering nutrients, organic matter and microscopic life and creating the conditions for fish and other animals to breed and grow. **“Rivers are the arteries and their flows are the lifeblood of the inland.”** That is why, how we manage water matters so much.

A billabong needs the river

A billabong is not simply a pool waiting for rain. Its connection with the river is naturally controlled by the level of the river. When the river rises high enough, water moves through the low point in the riverbank and into the billabong. **A connection between river and billabong like a valve opening and closing.**

When it opens, water carries organic matter, nutrients and microscopic organisms into the billabong. Fish, tadpoles and other animals can move in. Eggs and seeds can be carried with the flow. Then life explodes. Microscopic organisms multiply. Seeds germinate. Eggs hatch. Larvae feed on tiny organisms and become food for larger fish and birds.



A connected series of billabongs can therefore act like **a series of hearts, each contributing a pulse to the life of the whole river.** But if the river does not rise high enough, those connections do not happen. If the frequency, duration or size of these flows is reduced by water extraction and regulation, the ecological consequences accumulate.

The science confirms the warning

This is not simply an argument about protecting picturesque places.

Scientific monitoring across the Murray–Darling Basin shows that native fish populations remain in poor condition, waterbird populations are under pressure and important wetland vegetation remains degraded.

The independent *State of the Basin* assessment found that **74 per cent of its environmental indicators showed no improvement or were worsening.**

Flow-MER research also demonstrates what happens when water reaches floodplain wetlands: native vegetation can regenerate, wetland plant diversity increases, fish can respond with spawning and recruitment, and waterbirds return.

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The message from the science is remarkably consistent:

When rivers receive the flows they need, ecosystems respond. When those flows are denied, ecological condition collapses.

We are managing rivers as water delivery systems

“For too long Billabongs have been forgotten.”

Many of the water-sharing and river-regulation decisions continue to focus on high and low flows while treating rivers primarily as irrigation channels for delivering productive water.

The consequence, is devastating for fish and bird populations and for wetlands, vegetation and forests across our catchments.

“These rules ignore the connectivity flows which are the lifeblood of Billabongs, creating the pulses of life so critical for their ongoing functioning.”

This is the policy issue we need to confront. It is not enough to ask how much water has been allocated or how much environmental water has been delivered.

We need to ask: Did enough water reach the river? Did the river connect with its billabongs and wetlands? Did flows reach the floodplain? Were they large enough and frequent enough to sustain the ecological processes that depend on them?

Connectivity flows must be protected

The NSW Connectivity Expert Panel recognised the importance of restoring a more natural pattern of flows to the Barwon–Darling/Baaka. Its proposed approach includes:

A baseflow most of the time; a small fresh approximately every year; and, a larger fresh approximately every second year.

These are not arbitrary targets. Different flows perform different ecological functions. Baseflows help maintain aquatic habitat and connectivity through the river. Smaller freshes refresh habitats and stimulate ecological activity.

Larger freshes can reach higher parts of the riverbank and reconnect the main channel with anabranches, billabongs and floodplain wetlands.

This is the kind of flow regime that gives the river a chance to function as a connected ecosystem rather than a series of isolated pools and water delivery channels.

The rules need to change If we are serious about protecting the Murray–Darling Basin, then the protection of connectivity flows needs to become a central part of water management. That means:

1. Implement the Connectivity Expert Panel recommendations – the recommendations for restoring connectivity in the Northern Basin and Barwon–Darling/Baaka should be implemented in full and without unnecessary delay.

2. Protect connectivity flows in water-sharing plans - Water-sharing plans need explicit rules that protect the flows required to connect rivers with billabongs, wetlands, anabranches and floodplains. Connectivity cannot remain an assumed benefit of the system. **It needs to be a management objective.**

3. Strengthen extraction rules - When river levels and flows fall, restrictions need to occur early enough to protect ecological function — not only once a river is already approaching crisis. The 2023 Menindee fish kill demonstrated the consequences of waiting until conditions become catastrophic.

4. Fix floodplain harvesting rules

Water intercepted from floodplains can be water that otherwise contributes to downstream rivers and wetlands. Floodplain harvesting needs to be managed within a whole-of-river connectivity framework, including the water required to sustain downstream ecological functions.

5. Protect low-flow refuges

Deep pools and permanently or semi-permanently watered billabongs can be places of last refuge for fish and other aquatic animals during dry periods. These refuges need to be identified and protected before drought conditions arrive.

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6. Measure ecological outcomes

Government needs to monitor whether water is actually achieving ecological outcomes — including wetland inundation, native fish recruitment, waterbird breeding, vegetation condition and connectivity. Counting megalitres delivered is not enough.

The next dry period makes action urgent

The urgency is increasing. The Bureau of Meteorology has confirmed that **El Niño is established and strengthening**. Historically, El Niño has been associated with reduced winter–spring rainfall across the Murray–Darling Basin. But we must decide now how much pressure we place on rivers when water becomes scarce.

That decision needs to be made **before** rivers reach crisis point. The Basin's ecosystems are already carrying the legacy of drought, water extraction, regulation, habitat loss and altered flow patterns. Another prolonged dry period could place additional pressure on fish, waterbirds, wetlands and riverine vegetation. This is precisely why connectivity flows need to be protected now.

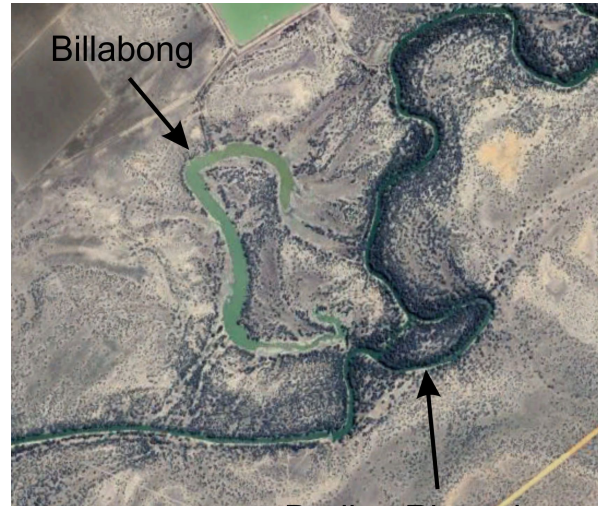
Our billabongs are silent sentinels

“These silent sentinels cannot speak for themselves.” But the evidence is speaking. We see it in fish kills. We see and hear it in degraded wetlands. We see it in declining wildlife populations. And we hear it when frogs and birds disappear from places where they once called. And we see and hear the opposite when water returns — wetlands come alive, plants regenerate, fish breed and birds arrive.

The Murray–Darling Basin still has remarkable capacity to recover. But recovery requires water. Not simply water somewhere in the Basin.

The right water, in the right place, at the right time — and enough of it to reconnect the river with the billabongs, wetlands and floodplains that are essential to its survival.

Billabongs are the heart. If we want to save the Murray–Darling Basin, **we need to protect the flows that keep its hearts beating.**



Billabongs are Different

A **billabong** provides an ecological system quite different from that of a river. Except during high flow times in the feeder river, a billabong's waters are generally still.

Cycles of rapid dilution during inundation followed by (slower) evaporation are often observed. The frequency of these cycles depends on the frequency and reliability of rainfall and the degree of management control. These cycles of inundation and evaporation produce variable water chemistry, also affected by the accumulation of organic matter on the bottom of the billabong.

Billabongs have a finite existence, following an orderly ecological succession to complete siltation in the long term, while undergoing a season pattern of periodic filling and gradual drying.

This environmental variation creates highly variable and sometimes ephemeral aquatic habitats in **billabongs**. **Billabongs** represent a distinct subsystem of freshwater aquatic environment where flora and fauna patterns are driven by ecological succession and colonisation.

In the River Murray, zooplankton and macroinvertebrate communities in billabongs are quite distinct from those that occur in the river. It is not the lack of connectivity to the river that is the cause of such difference, rather it is the inherent physical and biological differences between the two habitats.

I Billabongs

Billabongs are the heart of our Darling Baaka River, of all our big inland rivers that meander across the plains. They are not only symbolic of what we love about inland Australia – a place to relax in the shade of big old Red Gums or Coolabah trees while fishing or boiling the billy. **Billabongs** filled by and connecting with their river are at the heart of how our big inland rivers function to nurture native fish, such as amazing big Murray Cod and a host of waterbirds, how they supported indigenous people for so long since the dreaming, and can continue to support the health and wellbeing of people who live near them and visitors.

Inland rivers with vast floodplains are like a really big organism that have been living in their own ways for millions of years, co-evolved with all the species they nurture. Perhaps the plants and animals are their cells. The life of our inland rivers has evolved way to function together, not just so the predatory fish don't wipe out all their prey, but so the nutrients from the falling gum leaves and the energy captured from sunlight by aquatic plants can support a food chain, so little fish and big fish breed at a time when their larvae will have a food supply. Each river system has a form and habits that respond to local geology and climate, and shares ways of functioning that fit the environment and its ancient species.

Rivers are the arteries and their flows are the lifeblood of the inland. Just as blood is more than water, river flows have qualities which meet the needs of ecosystems in and along the rivers and out in the body of the floodplain - qualities needed by nature and the people of the inland, qualities like slow or faster flow, temperature patterns, what sediment, organic matter, salts or other chemistry it carries for short or longer periods, and what algae and minute animals are moving with the water.

While the movement of the water is determined mostly by gravity, when billabongs are connected to their river, they take the lifeblood in. To connect, the river needs a high flow, well up its banks. This is a turbulent flow, so it is likely to collect

organic matter, such as gum leaves that have fallen into the billabong, plus nutrients and floating organisms, taking some of them back out to the river, adding to its lifeblood qualities.

Our rivers have many **billabongs**. All those that are reached when a lot of rain in the catchment results in a high enough flow will contribute their pulse when the flow reaches them. They may be connected for a day or for weeks, repeatedly or rarely. A series of connected **billabongs** are like a series of hearts, each contributing a pulse to the life of the whole mega-organism.

Fish, tadpoles and other animals may have swum in or out. Some choose to lay eggs in **billabongs**. Eggs of other species get washed in. When the lifeblood flows into a dry **billabong** there is a surge of life as microscopic organisms grow then seeds and eggs hatch and larvae feed on the tiny animals or plants and grow into food for the bigger ones and birds fly in to find their food.

The connection of **billabongs** to their river is naturally temporary – they fill through a low point in the riverbank that acts like a valve, opening when the river rises high enough, closing when it drops. If the fish and other animals that came in don't leave first, they may be trapped when the river drops. They may stay in a deep **billabong**, waiting for the next time it is connected to venture out and try life in the main stream. Or die there if it dries too soon at least leaving their nutrients, and perhaps their eggs, for the next time the valve opens letting lifeblood into the **billabongs** and generating the next pulse back out.

A series of **billabongs** can be like a series of hearts, each contributing a pulse to the life of the whole mega-organism - if they are connected.

Kate Boyd

Billabong Explained

In Australian English, a [billabong](#) is a small body of water, usually permanent. It is usually an oxbow lake caused by a change in course of a river or creek, but other types of small lakes, ponds or waterholes are also called billabongs.

Etymology

The word *billabong* is most likely derived from the Wiradjuri language of southern New South Wales, which "describes a pond or pool of water that is left behind when a river alters course or after floodwaters recede". According to the [Macquarie Dictionary](#) (2005), the original term *bilaban* means "a watercourse that runs only after rain", with *bila* meaning "river", and possibly combined with *bong* or *bung*, meaning "dead". The attribution of this last part of the word was contested in 2004 by Frederick Ludowyk of the [Australian National Dictionary Centre](#), whose view was that "-bong" or "-bang" was a suffix "signifying a continuation in time or space". Ludowyk writes that *bong* meaning "dead" is not a Wiradjuri word but may have been picked up or assumed from the word "bung", which was originally a Yagara word used in the pidgin widely spoken across Australia.

The word is first recorded in Australian English in 1836, referring to the Bell River in south-eastern New South Wales, when explorer Thomas Mitchell records the Aboriginal name of the river as "Billibang". It is first recorded in its later, more general sense, by J. Allen in 1853: "This station is situated about half-a-mile inland, over a 'billy-bong' (the native name for a small creek or backwater. It appears in Edward Ellis Morris's *Austral English: A Dictionary of Australasian Words* (1898).

Definitions and descriptions

Definitions vary. A billabong is often defined as an [oxbow lake](#), an isolated crescentic pond left behind after a river loop is cut off when the river channel changes course.

[Merriam-Webster](#) defines the word as:

"1. (a) a blind channel leading out from a river; (b) a usually dry streambed that is filled seasonally", or 2. "a backwater forming a stagnant pool".

The [Cambridge Dictionary](#) describes it as "In Australia, a low area of ground that was part of a river in the past and that only fills up with water from the river during a flood".

Queensland's [Department of Environment, Science and Innovation](#), in its Queensland Waterhole Classification Scheme, describes waterholes as "referred to by a range of different names (i.e. billabongs, lagoons and waterbodies)".

Billabongs are usually formed when the path of a creek or river changes due to bank erosion, leaving the former channel deprived of further inflow and becoming a dead-end gully holding only residual water that has not yet drained or evaporated. As a result of the arid climate of many parts of Australia, these "dead rivers" often fill with water seasonally but can be dry for a greater part of the year.

Significance To people

Many billabongs are of cultural significance and social importance to Aboriginal and Torres Strait Islander peoples and used as sources of fresh water as well as other resources. Water is an intrinsic part of Country, and essential resource during drought or dry seasons, and they have many intricate ways of understanding how to find water.

In the days since the colonisation of Australia, these were important landmarks for European settlers to identify, and many billabongs were given names relating to the local areas.

Ecological significance

Billabongs are significant because they do not have outflow and can hold water longer than sections of rivers especially during drier season, thus serving important ecological functions as waterholes and habitats for freshwater animal and plant species. Many of these species' life cycles are related to the changes in seasons.

Our nurseries, our sisters: Aboriginal women call for water justice

For Aboriginal people, billabongs, wetlands and river pools are places of life, learning, ceremony and culture. They are where children learn to swim, fish and gather food, and where knowledge is passed between generations.

“They are our nurseries,” says Gamilaroi Elder Polly Cutmore. “They are the first parts of the river as baby and children we can walk in. They are not as dangerous as rivers and where children learn their culture, how to fish, swim and collect food.”

These wetlands are also vital refuges for fish, turtles, frogs, birds and other wildlife. As pools dry more frequently, families lose access to traditional foods and places for teaching, gathering and ceremony, while wildlife loses critical habitat.

Elders say declining flows, over-extraction, large-scale irrigation, cotton farming, private dams and on-farm storages are degrading rivers and wetlands, while groundwater extraction is disrupting aquifers and natural pools.

Agricultural chemicals, pesticides, herbicides, fertilisers, erosion and sediment are also contributing to declining water quality, while altered flows and loss of connectivity are damaging wetlands and aquatic ecosystems.



“Irrigation has destroyed the ecosystems that support the river and it’s killing us,” said Aunty Marlene Weribone, who grew up and raised her family on the Mehi River.

The crisis is also one of water justice.

More than 40 Elder Aboriginal women from across the northern Murray-Darling Basin gathered in Moree at the *Growing Up on the Mehi* workshop, calling for recognition of Aboriginal cultural and water rights. The gathering led to the formation of the Aboriginal women-led **Gamilaroi Water Carriers**.

“We’ve been intentionally left out when decisions are made about water,” Polly said.

The women are calling for greater Aboriginal authority in water governance, protection of culturally significant wetlands, better regulation of extraction, restoration of healthy river flows and compensation for historic dispossession.

“We have to bring our cultural law back. Look what they have done to our river — our river is dying, and we have a cultural obligation to care for it,” Polly said.

The Moree Statement calls for First Nations-led action to restore flowing rivers, protect aquifers and cultural places, and hold governments and industry accountable for river degradation.

We’ve got a lot of healing to do, but we know how to protect this country, how it’s supposed to be, how it’s supposed to flow, how it’s supposed to be connected and how we’re connected to it.”

For the Gamilaroi Water Carriers, restoring rivers is about protecting both Country and culture.

“The river is a living being and we need to recognise this,” Polly said. “No one owns water. Water belongs to everyone. It belongs to the land and the animals first.”

And, she says, **“The river is our Mother, it is a part of us. It’s where we come from; it holds our DNA. We want Her back.”**

How do birds respond to floods in our billabongs?

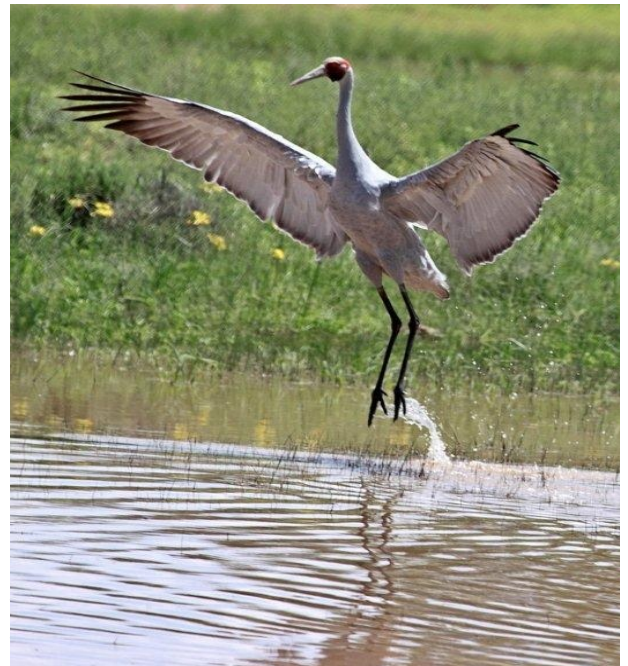
Floodplain wetlands are among the most degraded ecosystems despite their significant ecological and cultural value. People typically alter the natural hydrological regime by reducing flooding of floodplain wetlands. Floodplain wetlands, colloquially known as billabongs, rely on overbank flows from the river to support their biodiversity and function.

The University of Melbourne have been looking at [the impact of changed flooding regimes on birdlife reliant on floodplain wetlands for habitat and food resources](#). Waterbirds rely on the food, nesting, and breeding resources provided by billabongs, and in turn contribute ecological services including seed dispersal, nutrient provision and insect control. Specifically, the research sought to find out how waterbirds and woodland birds responded to the presence of water, water level, and duration of flooding at six billabongs.

Sixty-eight surveys over several years recorded one hundred thirty bird species were observed in total across- including 35 waterbird species and 95 woodland bird species.

They found the richness and abundance of each woodland bird did not differ between wet and dry billabongs. However, there was a general trend of greater woodland bird abundance and richness at intermediate water levels. The abundance and richness of nectarivores, granivores and carnivores varied across water levels with no clear patterns.

By contrast waterbird abundance tended to increase once billabongs were flooded and remain high until billabongs were flooded over capacity (i.e., at times when the



The study shows that waterbirds respond positively to fluctuations in wetting and drying at billabongs. However, the waterbirds may be less abundant when a billabong is newly flooded because resources such as aquatic vegetation or benthic invertebrates are yet to develop. Conversely, when billabongs have remained flooded for a long period, waterbird foraging may be restricted by changes in vegetation community composition or reduced invertebrate diversity.

The lesson from the University of Melbourne research to water managers is that they should aim to promote regular flooding of floodplain wetlands, particularly where flow and overbank flooding are reduced by river regulation. This could involve environmental watering or works to increase the connectivity of wetlands and billabongs to their parent river. Variability in water level and duration of flooding is also important in promoting bird diversity, as different bird groups benefit from different water levels and durations of flooding.