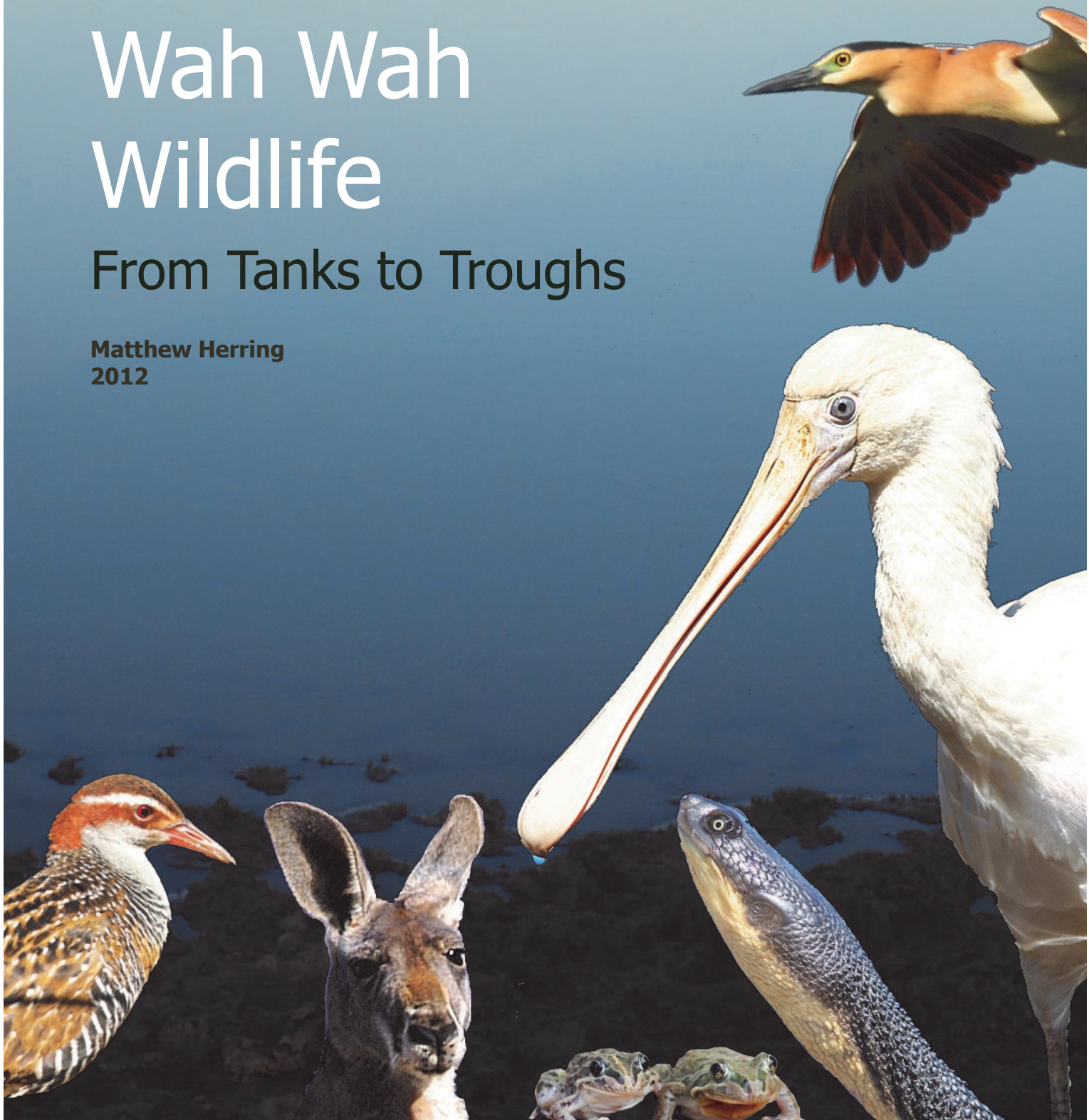


# Wah Wah Wildlife

From Tanks to Troughs

**Matthew Herring**  
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The Great Egret and Eastern Long-necked Turtle are among at least 40 wildlife species that use Wah Wah tanks regularly, but are unlikely to use troughs.

## Nothing Lost, Nothing Gained

Progress comes at a cost. Recovering water for the environment and improving efficiency of water use are critical in the Riverina, but what about the wildlife that have come to rely on the systems of old?

**The Issue:** After much anticipation, the Wah Wah Stock and Domestic Pipeline is now set to go ahead, following Minister Tony Burke's announcement of \$44 million funding to Murrumbidgee Irrigation in December 2011. It will convert an extensive channel system north of Hay to reduce water losses, replacing tanks (farm dams) with troughs, and channels with pipes. There has been concern among locals about the loss of wildlife habitat, especially from tanks, when the system is changed.

**What We Did:** An initiative of Hay Land-care, a study to assess the wildlife value of the tanks began in September 2011. It focused on 20 tanks across 12 properties, looking at birds, mammals, reptiles and frogs. A summary of the results is presented here. Detailed recommendations can be found on the final two pages at the back.



## Key Findings

- The main users of Wah Wah stock tanks are waterbirds, frogs, bats, kangaroos, rabbits, turtles, parrots, pigeons, White-fronted Chats, Magpie-larks, Willie Wagtails and Common Starlings. At least 40 species will be impacted negatively by the conversion to a piped system because they use tanks regularly and troughs won't suffice.
- Wah Wah stock tanks are typically only home to common species, and they're poor compared to natural wetlands, but there are more than 600 of them, and a small proportion have good habitat and hence good wildlife diversity, so overall their landscape value is significant.
- Maintaining water at a small number of select tanks and improving them; creating small wildlife ponds; and the construction of a large, dedicated Wah Wah wildlife wetland are recommended to mitigate habitat loss. Done well, they could even improve overall wildlife habitat quality across the Wah Wah landscape.



### What wildlife depend on surface water?

One in five local wildlife species, like the Great Cormorant (below), actually need wetlands and waterways to survive. Others like the Lesser Long-eared Bat (above) benefit from surface water but don't depend on it. Many species are well adapted to the dry Riverina conditions and simply get their meagre moisture requirements elsewhere, like dunnarts and most reptiles, which get enough from their prey. Some species like the Australian Wood Duck have benefited greatly from the tanks. Troughs will offer little to waterbirds, frogs and bats, but are likely to be a sufficient alternative to Galahs and other open country species not explicitly dependent on wetlands.



Stock Tank near Gunbar



**Typical Results from a 20-minute Wildlife Survey**

# The Exception & The Norm

Waterplants And Shallows Boost Wildlife Diversity In Farm Dams

Stock Tank near Yurdyilla



**Typical Results from a 20-minute Wildlife Survey**



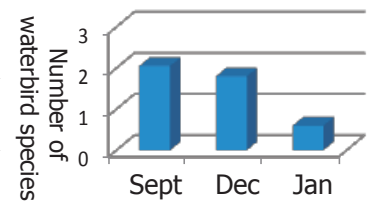
## It's All About Habitat

A total of 51 different bird, frog, mammal and reptile species were recorded using Wah Wah tanks, and an additional 45 species were found adjacent to the tanks, such as in nearby African Boxthorn or Black Box. Like most farm dams though, these tanks typically lacked healthy waterplant communities, were heavily impacted by stock and contained limited shallows. Water Couch was the only waterplant found at more than half of the sites but a handful of sites supported others like Juncus and Eleocharis rushes, increasing habitat and benefiting wildlife.

## Drought Refuges?

Despite popular opinion, the role of Wah Wah tanks as drought refuges is probably limited. For example, when the natural wetlands dried up, the average number of waterbird species recorded at each tank declined (see graph below). The vast majority of waterbirds sought refuge elsewhere. There were simply fewer birds around to use the tanks. Tank value and usage, at least for waterbirds, is determined by the superior natural wetlands.

Most tanks only supported common wildlife but those with good habitat yielded species like the Glossy Ibis, which require shallows to forage for their aquatic insect prey.





## What About The Trees?

Over the decades, many Wah Wah farmers have planted trees next to their tanks and channels. Indeed, the original motivation of Hay Landcare was to plant trees on the plains. This beautiful River Red Gum is only able to survive on the plains because of its 'wet feet'. It has increased the wildlife value of this tank. Wedge-tailed Eagles (note two nests in picture) and White-faced Herons were recorded nesting in trees adjacent to tanks during the surveys. Others, like the White-breasted Woodswallow, were present at tanks only because of the combination of water and trees. The replacement of tanks and channels with troughs and pipes will likely mean many trees die because rainfall in the area, typically less than 400 mm per year, is inadequate for most planted tree species.

## Threatened Species

The only species recorded using the tanks that is officially considered threatened in New South Wales was the recently listed White-fronted Chat, pictured here feeding chicks at a nest in saltbush. They do well in the shrublands of the Hay Plain, as long as they can forage on mudflats. It is unlikely that the tanks or channels are important for any other threatened species. For example, the nationally threatened Australasian Bittern (below), Australian Painted Snipe and Southern Bell Frog all favour wetlands with lots of waterplants and shallows, which the vast majority of tanks lack. Local wetland habitat creation efforts could target these species because they are the most threatened.





## Black Box: Bats, Bush Birds and Night-herons

The harp trap at this Black Box tank site on "Galah" yielded five different bat species in one night, much to the delight of field day attendees the following day. Among them were the Gould's Wattled Bat (left) and Inland Broad-nosed Bat (below). Results from the Anabat detector, which records bat vocals inaudible to the human ear, revealed at least three additional species at the site. These results, together with bat surveys at two other tank sites (including one distant from trees), suggest that Wah Wah tanks are widely used by bats. Above the water, they forage for flying insects and sometimes drink as well. The Nankeen Night-heron (left) was only recorded at this and one other Black Box tank site. They rely on the combination of trees (where they roost during day) and wetland shallows (where they feed at night). This Black Box tank is also excellent for woodland dependent birds, such as the Red-capped Robin (above), but this is because of the high quality of the bush, with shrubs, fallen timber, old trees and other important habitats, not because of the tank itself.





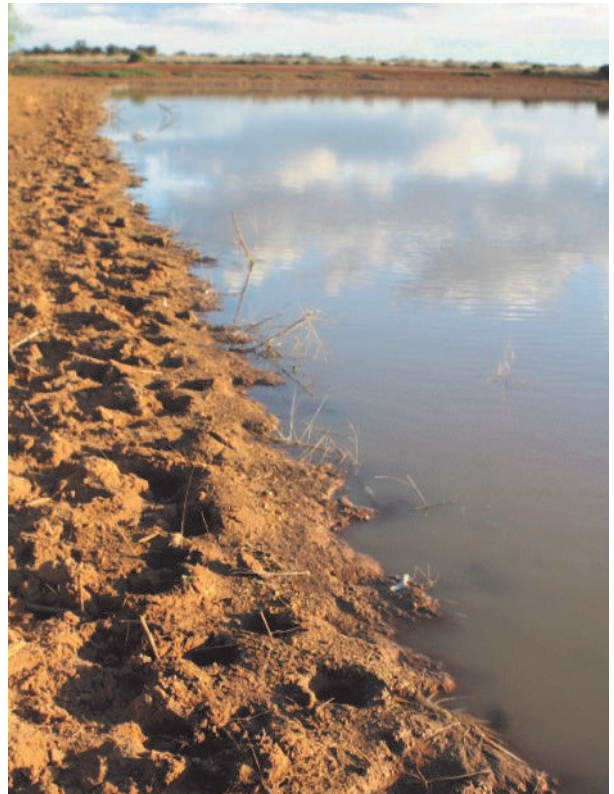
## Don't Forget The Ferals

It's not just the native wildlife that will be impacted by the conversion of the old system. The negative impacts to non-natives will be seen by many of us as a positive thing, although it's worth remembering that they're part of the ecosystem these days, so there will be cascading effects. Carp were recorded in almost every tank and their loss from large parts of the landscape will significantly impact fish-eaters like the Australian Pelican, three cormorant species and the Darter. Many tanks support an abundant Rabbit population and a colony of House Sparrows, primarily because of the African Boxthorn found adjacent. Common Starlings were one of the most regularly recorded birds at the tanks, coming in to drink each day.



## Grazing & Wetland Habitat

The impact of stock is the main reason Wah Wah tanks are typically barren, with little or no waterplant cover, and have a low wildlife habitat value compared to other wetlands. This is fine for some species like the Black-fronted Dotterel that prefer these open areas but for many species it means there is no habitat for them. Grazing in wetlands also disturbs sediment in the water, compacts the soil and increases nutrient levels. Any wetland conservation or creation initiatives in the Wah Wah district should consider fencing to exclude stock and enable resting for long periods. Water can be pumped to troughs with a simple ball and float valve. Keeping stock out of the water has the added benefit of reducing the risk Liver Fluke, Johnes disease and other threats associated with self-contaminated water.





## Can't Beat The Real Thing

At the time of writing, wetlands across the Riverina have just received significant flooding. Notwithstanding the damage to property and other negative impacts, it is a time for ecological celebration and revitalisation. It comes on the back of a relatively good year after a decade of drought. Waterbirds, frogs, bats and other wetland wildlife are benefiting immensely. They will also ultimately benefit from the estimated 9000 megalitres of annual water savings by the Wah Wah pipeline, which is being recovered for environmental flows.

In assessing the value of Wah Wah tanks, it is important to consider them in context of natural wetlands. The biodiversity value of the tanks compared to two remnant wetlands was found to be low. Pictured here (right) is a Nitre Goosefoot and Lignum section of the Mirrool Creek floodplain, and a Canegrass and Spike-rush wetland on the plains (below).

**The Spotted Marsh Frog;** abundant in natural wetlands.



The combination of mudflats, very shallow water and cover from water-plants at these two wetlands provide habitat for species like the Spotted Crake (pictured right), which only rarely use the tanks. Both of these sites yielded more than 20 bird species per 20-minutes during the September surveys. It is likely, at times, that they also support migratory shorebirds and several nationally threatened species like the Australasian Bittern.



## Mitigation Matters

It's quite a paradox that the Wah Wah pipeline should require mitigation or an offset for lost habitat because it is being installed to save water for return to the environment, which will benefit biodiversity. But the very nature of the landscape will change a lot, just as it did when the channels and tanks were first built early last century. It is a significant redesign of how stock and domestic water will move through the landscape and the concerns of local people about the potential impacts of the pipeline on wildlife are certainly justified.

Water on the plains was originally scarce or non-existent for long periods. The tanks have enabled species like the Galah, Crested Pigeon, Australian Wood Duck, Eastern Long-necked Turtle and Red Kangaroo to become resident. One of the most important questions is which species or groups of species do we want to target mitigation efforts towards, keeping in mind those that won't use the troughs. Scale is also central to considering mitigation options. For example, some species will benefit most from single large habitat areas, whereas others might be best off with many small habitat areas spread across the landscape.



## Three Main Options

So far, three options have emerged as the most popular, practical and efficient to mitigate the loss of tank habitat. It is recommended that a combination of these be undertaken.

### Strategic Tank Retention

Where possible, maintain the water supply to tanks identified as particularly significant for biodiversity. Habitat at these tanks could also be improved through stock exclusion, earthworks and other methods.

### Small Wildlife Ponds

Inspired by the Wimmera-Mallee pipeline ponds, dozens of these could be constructed across the Wah Wah landscape with minimal water use. The nature connection benefits to people are spread across many properties.

### Large Wildlife Wetland

The pooling of some resources to focus on a much larger, dedicated, semi-public wildlife wetland constructed, modified or managed to cater for threatened species, would provide a high overall benefit to wildlife.



If the troughs are not used by Red Kangaroos (left) and some other common wildlife, then are they species we will want to mitigate habitat loss for?

Above, a constructed wetland with shallows and a healthy waterplant community provides superb wildlife habitat. They could be stocked with native fish to help mitigate carp loss.

## So, Which Species To Target?

There are at least 40 bird, mammal, reptile and frog species that regularly use the tanks but are highly unlikely to use the troughs as an alternative. More than half of them are waterbirds, and most of the remaining species are bats and frogs. As a starting point, it makes sense to target these waterbirds, frogs and bats. This is especially the case for the threatened White-fronted Chat, which is likely to be impacted significantly because of its dependence on muddy areas.

More seriously threatened species that are nationally listed, including the Australasian Bittern, Australian Painted Snipe and Southern Bell Frog, together with migratory shorebird species, could also be targeted. This may seem silly but their greater significance would mean mitigation efforts achieved more for wildlife conservation as a whole, rather than just targeting species for which the tanks are important. As an example for the bitterns, this targeted habitat creation might involve the establishment of several hectares of patchy Phragmites reed beds or stands of Cumbungi, where they can breed.

The unknown but very small proportion of tanks used by woodland birds might increase the number of individuals for some species but most local woodland birds don't depend on surface water. Similarly, open country, shrubland and grassland birds are well adapted to living on the plains when there isn't any water.

**The Australian Painted Snipe could benefit from targeted habitat creation works.**



Locals at the "Galah" wildlife field day on January 25th, 2012.



Parrots are among the wildlife species most likely to use the troughs.



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