

Improving Biodiversity of Farm Dams



Case Studies Case Studies Case Studies Case Studies



Potential Realised

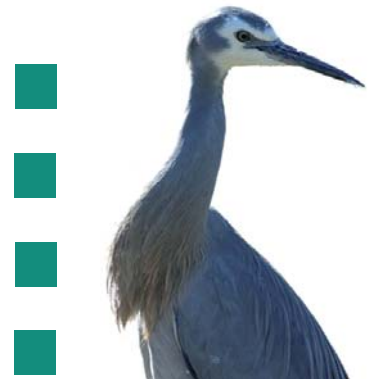
The below irrigation storage dam, which is located near Jerilderie in New South Wales, supports more than 50 waterbird species, including several that are classed as threatened. Separating it from most other farm dams is its extensive, ephemeral shallows and waterplant communities, which surround the core (deep) storage area. Over time, a wide range of waterplants have colonised the area because of the range of water depths and appropriate flooding regimes.

The farm dam illustrates the diverse structural habitat that is provided by mudflats, Canegrass, Nardoo, Eleocharis Spike-rushes, Lignum, Cumbungi, other water plants, and deep open water. It is a 30 hectare, 200 megalitre dam that was ungrazed for five years.

Waterbird Central

Among the waterbirds that have been recorded at this farm dam are a breeding pair of Brolgas, and good numbers of both the Australasian Bittern and the Australian Little Bittern. The dam has even provided a habitat for the near-mythical Australian Painted Snipe on several occasions.

There have also been ten migratory shorebird species recorded, coming from places like Japan and Siberia. And that's just the birds! Numerous frog and bat species can also be found here, as well as other interesting wildlife species, including Water Rats and Tiger Snakes, not to mention invertebrates.



“The farm dams pictured

support a variety of

wildlife. Together with the other

case studies presented in this brochure

they are an example of the incredible potential

farm dams have to support biodiversity.

Simple changes make a huge difference.”

Healthy Waterplant Community With Shallows



Birds

Pacific Black Duck
 Black Swan
 Grey Teal
 Hardhead
 Australasian Grebe
 Little Black Cormorant
 Little Pied Cormorant
 White-faced Heron
 White-necked Heron
 Great Egret
 Intermediate Egret
 Yellow-billed Spoonbill
 Straw-necked Ibis
 Swamp Harrier
 Brolga
 Purple Swamphen
 Eurasian Coot
 Black-tailed Native Hen
 Spotted Crake
 Sharp-tailed Sandpiper
 Marsh Sandpiper
 Black-winged Stilt
 Red-kneed Dotterel
 Masked Lapwing



Typical Wildlife Survey Results



Galah
 Fairy Martin
 Welcome Swallow
 Clamorous Reed-warbler
 Little Grassbird
Frogs, Reptiles & Mammals
 Plains Froglet
 Common Froglet
 Spotted Marsh Frog
 Barking Marsh Frog
 Pobblebonk
 Red-bellied Black Snake
 Water Rat



Unhealthy Waterplant Community Without Shallows

Birds

Australian Wood Duck
 Grey Teal
 White-faced Heron
 Galah

Frogs, Reptiles & Mammals
 Plains Froglet





Biodiversity Return Per Megalitre

With the increasingly precious nature of our water resources in the face of prolonged drought, global warming, and more competition for environmental water, it is critical for us to get the biggest biodiversity return possible for every megalitre used throughout the landscape. Water in farm dams provides the potential for a win-win scenario where food production and biodiversity are linked.

Locals at a field day in the Durham Ox region of northern Victoria learn about the biodiversity potential of farm dams.



25 000 Kilometres for Mud

Our migratory shorebirds fly up to 25, 000 kilometres every year, along the East Asian-Australasian flyway. These incredible species are among the most amazing wonders of the natural world. Sadly, there has been a global decline in migratory shorebird populations, and the species that rely on Australia have not been spared. Farm dams that have mudflats and very shallow water will benefit species like the Marsh Sandpiper. Their great mobility means they are very responsive to the creation of new habitats.



Growing Importance

The very dry conditions experienced throughout many parts of Australia, including the southern part of the Murray-Darling Basin, are increasingly devastating for wetland biodiversity. Farm dams are often the only places in the landscape where water is present, but lack of habitat has limited their ability to act as drought refuges. Simple changes can turn this around.

Value-Adding Logs, Straw, Microtopography...

Shallow water and waterplants are generally the most important habitats to improve in farm dams, but there are others worth considering too. The positive impact of adding logs to constructed wetlands was recently discovered in a US study, by Amy Alsfeld from the University of Delaware, and her colleagues.

Logs were added to Delaware wetlands in an attempt to increase biodiversity. Excitingly, they found the diversity of insect species was much greater in wetlands where logs had been deployed. Aquatic insects and other invertebrates provide waterbirds, frogs and other wildlife with food, and are an integral part of wetland ecosystems. Logs were added at rates of around four cubic metres per hectare.

This study and others around the world have revealed that a wide range of additions can improve the biodiversity in constructed wetlands. Some of these include deploying organic material (e.g. straw), waterfowl nest boxes, rocks and pontoons, and increasing microtopography (ridges and furrows).



Cumbungi and Mudflats Make a Huge Difference

The above irrigation storage dam in the Deniliquin-Barham region has supported some significant species not normally associated with farm dams. Although sometimes considered a weed, the Cumbungi in this dam is crucial to supporting the endangered Southern Bell Frog (pictured above) for several months. On top of providing an important wildlife habitat, Cumbungi is also useful for improving water quality, preventing erosion of dam banks, acting as a windbreak to reduce water losses, and providing grazing value.

Cutting followed by inundation can help avoid domination and achieve a balance of patchy, young and old stands. The Red-kneed Dotterel (pictured above) was one of the birds to benefit from the mudflats, while the Spotted Crake, a secretive quail-like waterbird, utilised the combination of Cumbungi and mud.



Countless Benefits

Creating or modifying a farm dam so that it becomes rich in biodiversity has many wide-ranging benefits. For example, there are growing markets in parts of the world where wetlands are used to offset losses elsewhere, and where landholders are paid to maintain the ecological services provided by wetlands, such as habitat, retaining nutrients and providing clean water.

One of the most important benefits is that farm dams rich in biodiversity can help reconnect us with nature and the other species we share our landscapes with. The deafening sounds of frogs calling and the sights of swans, ducks, cormorants, rails, herons, egrets, spoonbills, ibis, sandpipers, stints and stilts are just part of the reward for creating more habitats in your farm dam. Healthy wetlands and healthy landscapes mean healthy people and healthy communities.





Irrigation Storage Area: 1-3 metres deep

**Waterplant Zone
Seasonally flooded shallows
(<50 cm)**

Brolga Breeding Dam

This farm dam on an irrigated dairy property near Yarrawonga, Victoria, has supported a Brolga breeding pair for many years (note the nest with two eggs in photo). The central part of this 2.6 hectare dam contains an ideal nesting habitat for Brolgas because of the seasonally flooded shallows with rushes. The deeper outer zone serves as the traditional storage area with a more permanent water regime. The owners maintain water levels when the birds are nesting, and local fox control efforts increase the chances of successful breeding.

Useful Websites

- Landcare Australia
www.landcareonline.com
- Wetland Link Newsletter
www.wetlandlink.com.au
- Birds Australia
www.birdsaustralia.com.au
- CRC for Irrigation Futures
www.irrigationfutures.org.au
- Wetland Care Australia
www.wetlandcare.com.au
- Wetlands International
www.wetlands.org
- Frogs Australia Network
www.frogsaustralia.net.au
- Murray-Darling Freshwater Research Centre
www.mdfrc.org.au
- Australian Government Water for Future
www.environment.gov.au/water

more information

For more information on the National Program for Sustainable Irrigation's research programs and projects, visit NPSI's website at www.npsi.gov.au.

For more information on the CRC for Irrigation Futures' research programs and projects, visit the CRC's website at www.irrigationfutures.org.au.

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