

Frogs on Farms



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Aims

To determine whether wildlife ponds installed adjacent to existing farm dams in the Wimmera and Southern Mallee channel/dam region can attract and support frogs.

To determine whether there is any capacity for frog populations in the Northern Mallee Pipeline region, which may still be dormant in and around old dams, to respond to the addition of water through a wildlife pond and re-occupy these sites.

Take home messages

- *Wildlife ponds provide suitable habitat for frogs, turtles and birds*
- *Frog populations in the Wimmera and Mallee channel/dam region can be maintained by installing wildlife ponds near dis-used dams.*

Introduction

The 'Frogs on Farms' project developed from the success of the 'Diversity In a Piped System' project (2004 to 2006), which demonstrated that wildlife ponds can improve the biodiversity value on farms in the Wimmera and Mallee. Frogs were identified as the faunal group likely to be most seriously affected by the loss of open water as a result of the development of the Wimmera Mallee Pipeline. This project is investigating the suitability of wildlife ponds for maintaining frog populations on farms.

Method

The project began in February 2006 and has established seven wildlife ponds in the Wimmera and Southern Mallee channel/dam region, and four in the Northern Mallee Pipeline region.

In the channel/dam region, ponds were established in Black Box woodland areas adjacent to existing frog populations. These ponds will test the capacity of frogs to disperse from dams and waterholes to wildlife ponds. In the pipeline region, ponds were established in, or next to, an old farm dam which previously provided habitat for frogs. These ponds will test the capacity of wildlife ponds to re-establish frog populations in their former habitats. All sites have been protected from grazing through fencing either the just the pond, an area around the pond or the whole woodland block. Four control sites were established in Black Box woodland areas where a rain-filled water body was present. Two sites contained a natural shallow swamp, one site was centred around a dam dug in a natural creek bed, and the fourth site was a catchment dam excavated in the bed of a shallow swamp.

The wildlife ponds followed the new design developed by BCG and promoted in the BCG Farmer's Guide to Installing a Wildlife Pond (available on the BCG website). The ponds are circular, four metres in diameter and planted out with aquatic vegetation. Water levels in the ponds are maintained using a float valve connected to a piped water supply.

Frog surveys were conducted once per season, ie. four times a year, both during the day and at night. Night surveys involved listening for frog calls, playing recorded calls to encourage a response,

spotlighting to detect spawn, tadpoles and non-calling adults, and searching under objects around the pond edge for hidden frogs. Day surveys involved searching for frogs under objects around the pond and among the aquatic vegetation, looking for spawn and tadpoles in the pond, and sweeping the pond with a hand-held net for tadpoles.

Results

Fieldwork has been completed for the channel/dam region and data are currently being analysed. Summer surveys for the Northern Mallee Pipeline are underway and will be completed by the end of February 2009.

The winter/ spring rains had a big influence on frog activity in the region. Rain triggers frog activity by 'waking' frogs which have been hibernating in or near the dam sites. Frogs have been found in six of the seven ponds in the Wimmera and Southern Mallee channel/dam region, and one of the four ponds in the Northern Mallee Pipeline region. Table 1 lists the results of the frog surveys for each of the 11 wildlife ponds.

Table 1. Number of each frog species recorded at the wildlife pond (WP) sites. The numbers represent the maximum number of each species seen or heard in the wildlife ponds during the survey period. Sites WP1 to WP8 are in the Wimmera and Southern Mallee channel/dam region. Sites WP9 to WP12 are in the Northern Mallee Pipeline region.

Species	WP1	WP2	WP3	WP4	WP5	WP6	WP8	WP9	WP10	WP11	WP12
Common Froglet				1							
Plains Froglet	4						1				
Spotted Marsh Frog	3	3	3				1	3			
Pobblebonk					1						
Bibron's Toadlet	1										
unidentified frog sp					1		3	yes*			
Long-necked Turtle	1			1							

Five species of frogs have been recorded in the wildlife ponds (Table 1). Spotted Marsh Frogs are the most widespread species, being found in five of the seven occupied ponds. A sixth species, Common Spadefoot, has been recorded at waterbodies (a farm dam, a swimming pool and a flooded drain) adjacent to three of the wildlife ponds. Tadpoles have been recorded in five of the seven occupied ponds.

Long-necked Turtles have been found in two of the wildlife ponds. Turtles have also been found in a farm dam adjacent to a third pond.

Wimmera Mallee Channel/Dam Region

The results show that, with the exception of WP6, which was dry over spring/early summer 2008, all of the ponds in the Wimmera and Southern Mallee channel/dam region have been colonised by frogs. These ponds were all established adjacent to dams which contained water and, until recently, receiving channel fills. It is not surprising therefore, that in the absence of channel fills, frogs have responded to the availability of the water resource that the ponds provide. Frogs were found in the adjacent waterbody in only five of the seven sites, the other two sites had water in the adjacent dam but no frogs were found. Frogs did however colonise the ponds at both of these sites. The one site that did not support frogs (FP6) was dry during spring/summer 2008. However, frogs have been found in a rain-filled waterhole within 100 metres of the pond and it is expected that frogs will colonise the wildlife pond after it is re-filled.

The frog species totals are likely to have been underestimated because only male frogs call, and therefore females and any non-calling males would not be detected. Also, frogs seek shelter on

approach and individuals hiding in the water or among vegetation may not have been detected by spotlighting and searching. A survey of WP9 in November 2008 found many newly-developed frogs which were most likely Spotted Marsh Frogs. This species had spawned in the pond earlier in the year. The discovery of a Bibron's Toadlet at a pond near Culgoa is significant as this species is considered Endangered in Victoria.

Northern Mallee Pipeline Region

Frogs have only been recorded at one site in the Northern Mallee Pipeline region, site WP9 (see Table 1). The farm dam adjacent to this site has not received a channel fill for over 13 years, though it does hold a small amount of water after heavy rain. Spotted Marsh Frogs were heard calling from this dam after winter rain. A Spotted Marsh Frog was heard calling from the wildlife pond three weeks after the rain event, and as the dam dried out, more frogs were found in the wildlife pond until it was the only spot with frogs.

Of the other three Northern Mallee Pipeline region sites, frogs are known to occur in the landowner's garden within 100 metres of the pond at one of the sites (WP10), but have not yet been found in the wildlife pond. No frogs have been found at sites WP11 or WP12.

The results suggest that farm dams in regions which have not received channel fills for many years only have a limited capacity to sustain frog populations, and are probably reliant on dams to catch rainfall and hold water long enough for breeding to be successful.

Birds

The bird survey results for the Wimmera and Southern Mallee channel/dam region are shown in Figure 1. Surveys were conducted at the wildlife pond sites before the ponds were completed to measure the bird populations present before the addition of water.

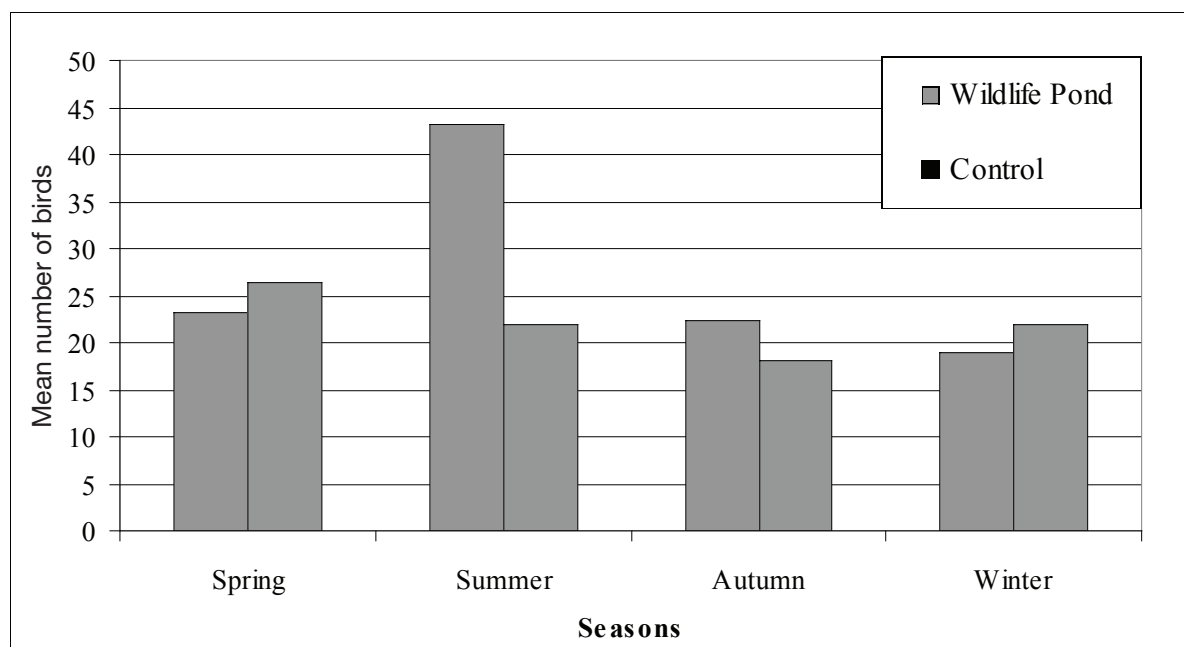


Figure 1. Mean number of birds recorded per season for the wildlife pond and control sites.

Control sites provide a comparison with the pond sites pre-fill and with the seasonal active pond results. Surveys of the wildlife pond sites before filling recorded a mean of 21.6 birds. With the exception of the wildlife ponds in summer, the results show little variation in bird populations seasonally, both between the wildlife pond sites and the control sites, and between the ponds before and after filling. Summer months place the greatest stress on water-dependent species. The mean

number of birds recorded at the wildlife pond sites in summer have been double all other levels. This suggests that water is not a limiting resource in Black Box woodlands outside summer, but that during summer, the wildlife ponds are providing a valuable source of water for birds. This is borne out by the activities of birds recorded during the surveys. In summer, 66.7% of all birds recorded were either seen drinking or were found within 25 metres of water. In spring, autumn and winter, only 24.1% of birds recorded were drinking or near water.

Results for the Northern Mallee Pipeline region show similar trends for seasonal and pre/post-fill results, and indicate similar increases in bird numbers in summer, though the summer surveys are not yet complete.

Conclusion

The results demonstrate that wildlife ponds are providing a vital resource for water dependent fauna. The ponds provide suitable habitat for frogs to occupy and breed in, and the diversity of frog species recorded utilising the wildlife ponds indicates that the design is sufficient to meet the different needs of different species. The wildlife ponds also provide an important resource for birds, particularly in summer, and habitat for Long-necked Turtles, a reptile species dependent on water bodies for survival.

The wildlife ponds have demonstrated that they are an effective strategy for increasing a farm's biodiversity value. The concept can be applied as an alternative use of disused farm dams and provide opportunities and incentives for the protection of remnant native vegetation. The value of a healthy environment on farm, which wildlife ponds can help nurture, will flow on through the landscape for productive and healthy systems.

Acknowledgements

BCG thanks the RE Ross Trust and George Alexander Foundation for supporting the project. Further assistance is provided by WIDCORP, the University of Ballarat and the Wimmera and North Central Catchment Management Authorities. Thank you to Jodie Odgers for assistance with pond installation and communication activities. Most importantly thank you to the landholders who host sites and work with us on this project.



A wildlife pond near Culgoa where three species of frog have been recorded.



A Spotted Marsh Frog.