

Resurrecting a ghost pond at Mill Bank Meadows.

Gary Farmer



02. Work underway to resurrect the ghost pond at Mill Bank Meadows, Fladbury 10.05.21. Gary Farmer.

Ghost ponds represent biological 'time capsules' whose restoration can facilitate the rapid return of wetland habitat and aquatic plants into the farmland landscape. (Alderton et al 2017).

Mill Bank Meadows is a 20 acre grassland site adjacent to the Oxton Ditch, Fladbury. About two thirds of the site lies within the River Avon floodplain and is inundated most years. The meadows were purchased by Vale Landscape Heritage Trust as a meadows enhancement project in 2019 funded by Severn Waste Services through a Landfill Communities Fund grant. At the lowest point in the south-west corner of the site was an overgrown, damp area. It had been fenced off from livestock many years previously because of its boggy nature, which had allowed encroachment from Crack Willows *Salix fragilis*. These willows had collapsed, as is the way of such trees, forming a near closed canopy over the boggy area. This had subsequently been mapped a 'woodland' by Rural Payments Agency (RPA). In the areas where sunlight could penetrate, the vegetation was dominated by Common Nettle *Urtica dioica* with abundant Cleavers *Galium aparine*, and occasional Angelica *Angelica sylvestris* along with the invasive Orange Balsam *Impatiens capensis*.

It was decided that the willows should be coppiced to allow further examination of the area. So, during the winter of 2019/20 the willows were reduced back to their stools and the exposed area was mown several times and raked off, and then left to see how the site would respond (01). The nettles returned, along with Creeping Buttercup *Ranunculus repens* and grasses, with an abundance of Water Figwort *Scrophularia auriculata* around the edge of the site, but very little else appeared. A small trial hole was dug to a depth of 0.5 metre and this filled up with water immediately, leading to plans to re-instate what appeared to have been a pond in the past; a ghost pond.

It was at this time that Daniel Roberts was working for Worcestershire Wildlife Trust as a Water Environment & Agricultural Officer. As part of his remit he was able to advise landowners on how to put together schemes suitable for funding through the Water Environment Grant (WEG), part of the Rural Development Programme for England, funded by the European Union.



01. Area of Mill Bank Meadows prior to scraping out pond. 03.02.21. Gary Farmer.

We had to seek relevant licences from The Environment Agency, and unfortunately because we could not prove that the area had been a pond in the past, we also had to apply for Planning Permission from Wychavon District Council. Frustratingly they would only allow a very shallow pond, not much more than a scrape but at least we would get some open water on site. This all took extra money and a lot of time. Throw the pandemic into the mix and if it were not for Dan's persistence and patience (and lots of it), our project would quite literally have been dead in the water.

Once we had been given the go-ahead a contractor was appointed and work began (02). It was still not plain sailing as we were by now into May; right in prime bird-nesting season. And although there was no suitable vegetation in the actual excavation area we were concerned about the adjacent scrub. This meant a lot of very early mornings, checking the site before work could start each day and during the work itself. But once things got under way the pond was scraped out without a hitch and it filled up with water straight away from springs (03) and looked like it was meant to be there.



03. The newly resurrected pond at Mill Bank Meadows. 18.05.21 Gary Farmer.

There was no further intervention and within weeks the first plants started to appear from the seedbank. The first to flower was Celery-leaved Buttercup *Ranunculus sceleratus*, an annual that seems to be present anywhere that wet ground is opened up, along with small patches of Redshank *Persicaria maculosa* and other plants including Water Figwort *Scrophularia auriculata* which spread quickly. Rushes *Juncus spp.* appeared a little further away from the edge and slowly increased, being most obvious during the winter when other plants had died-down (03).



04. Mill Bank Meadows pond in its first winter. 27.11.21. Gary Farmer.

Brook-lime *Veronica beccabunga* soon followed and spread rapidly amongst a near complete ring of Water-cress *Nasturtium officinale* that surrounded the open water within 12 months (04). As this started to die down Fool's Water-cress *Helosciadium nodiflorum* began to flower. Possibly the biggest surprise was a small patch of Ragged Robin *Lychnis flos-cuculi* (05), which isn't known from anywhere close to Mill Bank. Orange Balsam remained in the Nettle beds further away from the water and this was removed by hand before it seeded.



05. Various plants from the seed bank germinated and surrounded the pond within 12 months. 17.05.21. Gary Farmer.



06. Ragged Robin was a surprise when it appeared in flower at Mill Bank pond 17.05.22. Gary Farmer.

The pond held water right through the summer of 2021, fed by the springs, but, most unusually, the Worcestershire Avon didn't flood during the winter 2021/22 so we do not know how that will affect the flora and fauna in the pond when it does. The fairly dry winter also meant that the ground water was low by the start of the exceptionally hot and dry summer of 2022 and eventually by the end of August 2022 the pond was reduced to an area about the size of a dustbin lid (06). Rains finally came at the beginning of September that year just before it completely dried up. We will continue to monitor the pond to see how it matures.



07. 15 months after the pond first filled up it nearly dried out completely during the exceptionally hot and dry summer of 2022. 30.08.22. Gary Farmer.

As with any water body, the pond attracted a variety of invertebrates, birds and mammals. However, no amphibians have been seen to date. Unfortunately time did not allow for any surveys of the aquatic invertebrates but water boatmen and water beetles were seen. The Common Pond Skater *Gerris lacustris* (07) arrived very early on and both adults and nymphs were observed.



08. The Common Pond Skater *Gerris lacustris* was one of the first invertebrates to find the pond. 13.07.21. Gary Farmer.

Dragonflies were drawn to the pond straight away and so far 10 species have been seen. Several species have been observed ovipositing including Emperor *Anax imperator* (08), Broad-bodied Chaser *Libellula depressa*, Common Darter *Sympetrum striolatum*, Blue-tailed Damselfly *Ischnura elegans* (09), Large Red Damselfly *Pyrhosoma nymphula* and Azure Damselfly *Coenagrion puella*. Within 12 months the first Broad-bodied Chaser exuviae were found at the pond's edge (10).



09. Several dragonfly and damselfly species have been observed ovipositing including this Emperor 13.07.21. Gary Farmer.



10. Blue-tailed Damselflies in cop. at Mill Bank pond 13.07.21. Gary Farmer.



11. Broad-bodied Chaser exuviae were found just 12 months after the pond-work had finished. 17.05.22. Gary Farmer.

Slender Groundhoppers *Tetrix subulata* are often found at wetland sites and this species has already been found at Mill Bank. Beetles found around the new pond include *Elaphrus riparius*, a species of wet muddy places. The abundant Water Figwort has attracted the Figwort Sawfly *Tenthredo scrophulariae* and three species of figwort weevil *Cionus hortulanus*, *C. tuberculosus* and *C. alauda*. Other weevils (12) include *Ceutorhynchus picitarsis* and *C. pallidactylus*, both found feeding on the Watercress, and the tiny flea weevil *Isochnus sequensi* a miner of willow leaves. Amongst the flies recorded are the attractive picture-wing fly *Euleia heraclei* and the crane fly *Nigrotipula nigra* (11), a predominantly fen species largely absent from the Midlands (Stubbs 2021). Several hoverflies have been noted, particularly *Helophilus pendulus*, a typical species of wetlands.



12. Two of the weevils found feeding on Watercress, *Ceutorhynchus picitarsis* (left) and *C. pallidactylus* (right) 18.05.22. Gary Farmer.



13. Crane fly *Nigrotipula nigra* a predominantly fen species has been found at the new pond 13.07.21. Gary Farmer.

The first birds to be seen were Mallard *Anas platyrhynchos*, Blackbird *Turdus merula* and Grey Heron *Ardea cinerea*. And on one occasion when I was pulling Orange Balsam from amongst shoulder-high nettles (while questioning my life choices) I heard a sharp 'peep' and looked up to see a Kingfisher *Alcedo atthis* perched nearby. Grey Wagtail *Motacilla cinerea* and Stock Dove *Columba oenas* (13) have also been seen, but the biggest surprise was a Green Sandpiper *Tringa ochropus* (14) that stayed for a week or so in August 2022. Many small water bodies had dried up during the drought and there was just enough water at our site to attract the sandpiper.



14 & 15. Stock Dove (left) and Green Sandpiper (right) at Mill Bank pond. Stills from camera trap video footage. Ben Rees.

Mammal tracks were evident straight away, and Rabbits *Oryctolagus cuniculus* were seen at the pond on several occasions. To find out what other mammals were visiting the pond, Ben Rees set up a camera-trap to capture video footage. He filmed Roe Deer *Capreolus capreolus* including a doe and kid (16) as well as an amorous buck harassing the doe. A Badger *Meles meles* was filmed at night (17) and a very frustrated Fox *Vulpes vulpes* (18) was caught on camera as it tried unsuccessfully to catch the Green Sandpiper!



16. Roe Deer doe and kid. Still from camera-trap video footage. Ben Rees.



17. Badger. Still from camera-trap video footage. Ben Rees.



18. A frustrated Fox filmed trying in vain to catch the Green Sandpiper. Still from camera-trap video footage. Ben Rees.

Acknowledgements

Our thanks to Daniel Roberts for making this project possible, and to Severn Waste Services for funding the purchase of the site and ongoing maintenance. Thanks to Ben Rees for setting up the camera-trap; some of the footage can be viewed on Vale Landscape Heritage Trust's Facebook Page - <https://www.facebook.com/valetrust>

References

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Images

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