Restoring the ghostly and the ghastly: a new golden age for British lowland farm ponds?

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A restored Suffolk pond in late spring. Juliet Hawkins

The first pond of the survey is approached along a set of tramlines in a ripening but still wave-rippled barley field, deep in East Anglian farmland. Peering over low willow regrowth on the pond's southern side, we see the results of two years of plant recolonisation revealed in a low shaft of sun. An underwater glade, dappled with dense stonewort meadows concentrically guarded by a canopy of pondweeds, giving way to rushes and abruptly folded forget-me-not leaves in shallow, spring-clear water. Every muddy footstep lifts a musty-mint fragrance into the air and water beetles glint and flee into the living tangle. Such is the satisfaction of the surveyor returning to a recently restored farm pond.

British farmed landscapes are speckled with old ponds that hold up in holes deliberately dug into clay, with this especially true in East Anglia and north-west England. In some areas, every farmer's field hosts at least one pond, sometimes more, and while vast numbers were filled in after the Second World War many remain. Yet this resource has been hugely neglected in farmland conservation, with efforts focused instead on hedges and field margins and on crops for birds and pollinators. We previously published an article in *British Wildlife* (Sayer *et al*. 2013) focused on Richard Waddingham and his Norfolk farm (Manor Farm, Briston), emphasising an urgent need for pond restoration and management. Nearly a decade on, after expanding the work to many other farms, we are more convinced than ever of this need.

In this article we discuss the history of farm ponds, especially East Anglian clay and marl-pit ponds, and illuminate agricultural and cultural practices that are now largely forgotten. We introduce the problems that farm ponds have faced over recent decades, and then outline our experiences of restoring, resurrecting, and managing old farm ponds in Norfolk and Suffolk and the benefits that this can yield for aquatic and terrestrial species.

A shallow mid-field Norfolk farm pond. Carl Sayer

History of English and East Anglian clay pits

If you derive comfort from finding surviving components of the ancient in today's countryside, then ponds will delight. A field pond might harbour the last remnants of an old hedgerow, which in the more distant past may have flanked a track through an ancient wood, where drovers, marl-diggers and farm labourers passed. Plants such as Primrose *Primula vulgaris*, Red Campion *Silene dioica*, False Brome *Brachypodium sylvaticum* and sometimes gems such as Sanicle *Sanicula europaea*, Early Purple Orchid *Orchis mascula* and Moschatel *Adoxa moschatellina* are indicators of older landscapes, and quite often ponds are the only locations for these species along spray-influenced field edges.

Many English countryside ponds are very old. When the Romans built roads, they created drainage ponds alongside, and in so doing provided watering places for horses and livestock using the route. In an examination of Anglo-Saxon charters, Rackham (1986) concluded that one in 50 of the points by which boundaries were delineated was a pond. Moreover, the Domesday Book of 1086 includes occasional mentions of ponds, especially fishponds, as revenue-earning items.

In East Anglia, as for much of Britain, the most significant historical driver of pond creation was the digging of pits for clay (hence the continued widespread usage of 'pit' among older farm workers). Clay was used to build clay-lump and wattle-and-daub buildings, to make pottery and bricks and, most importantly, as a means of improving soil in the case of marl (calcium-rich clay). East Anglian field and road names such as 'Marl Hole Pightle', 'Marl-pit Piece' and 'Marl Pit Lane' point towards the historical importance of local marl-digging and of 'marling' of the fields, which goes far back into history. Jeffery (2008) reports on references to marling by the Celts in the writings of the Roman author Pliny the Elder, and Rackham (1986) suggests that Anglo-Saxon references to 'lampytt' (loam pit) could refer to a marl pit. The first clear-cut references to marl-pit working, however, come from the 13th and 14th centuries (Day *et al.* 1982), and many place-names of this period reference marling, such as 'Marlepitlond' – five acres of land granted at Saxthorpe, Norfolk, in 1277 (Prince 1962). Marl-pit digging was commonplace in many areas of lowland Britain over the 16th to 18th centuries, as shown by maps of north-west Norfolk from the 1600s. Yet by the late 19th century marling was in decline, and had largely ceased by the early 20th century (Prince 1962).

Both Rackham (1986) and Prince (1962) concluded that marl pits were frequently located at mid-field and/or upslope positions so that heavy loads of clay did not have to be carted large distances or uphill. As with many old farming activities, the significance of marling goes way beyond the practical into ritual and superstition. In Lancashire, the early 1700s saw landowners arranging May Day-like festivities, described as the 'flowering' of marl pits, which sometimes even featured sword dances (Gibson 1881). Writings from the Fylde area (Harland & Wilkinson 1867) describe a gala day associated with the 'shutting down of marling' which centred on two people selected as the 'Lord' and 'Lady' of the pit. These two figures were 'drawn out of the marl-pit by a strong team of horses, gaily decorated with ribbons, mounted by their drivers, who were 'trimmed out in their best', and the procession then paraded through the village.

Once clay- and marl-pit ponds were in existence, they were put to use. As early as the Anglo-Saxon era (410–1066AD) some shallower ponds in East Anglia were employed in the rather smelly and polluting practice of hemp-retting (breaking down hemp stems to separate fibres). Further, over many centuries, field and farmyard ponds were used to water livestock (horse pits), wash laundry and to soak cartwheels. In Norfolk, one farmer (Arthur Sayer) wetted hessian sacks in a pond; they were then laid out in a sugar-beet field and used to catch crop-eating beetles. Up to around the 1960s, rural East Anglian children would creep out over ponds on willow branches with a spoon bound to a stick in order to gather eggs of 'water hens' (Moorhen *Gallinula chloropus*). Palaeoecological studies have identified the presence of Crucian Carp *Carassius carassius* in Norfolk ponds as far back as the late 1600s (Walton *et al.* 2021a), and this species appears to have been used as a food source from at least 1778 (Woodforde *et al.* 2008) through to the 1970s (as known by an elderly resident of Bodham, Norfolk). Furthermore, a number of older farmers in Norfolk and Suffolk have recollections of Eels *Anguilla anguilla* being caught for food from ponds on worm-baited lines by night.

Much evidence suggests that ponds, because they had many uses, were periodically managed to prevent them from becoming overgrown. At a Norfolk Show event, one older farmer reported that bushes were cleared from ponds to remove habitat for Brown Rats *Rattus norvegicus*. Indeed, just as the hedges were cut back every few years, so was scrub from ponds, this being a job for post-harvest into early winter. Thomas Tusser, who farmed in Suffolk in the mid-16th century, wrote *Five Hundred Points of Good Husbandry*, an expanded version of his original title *A Hundreth Good Pointes of Husbandrie* (1557), and advised his fellow farmers on pond-cleaning or 'saying' in September:

> *Such muddy deep ditches and pits in the field,*
> *That all a dry summer no water will yield.*
> *By saying and casting that mud upon heaps,*
> *Commodities many the husbandman reaps.*

Rotational pond-'cleaning' to gain organic matter would thus have been a regular part of the farming calendar, ensuring that ponds stayed open, sunny and accessible for livestock to drink from.

Ponds clearly have a long history in the British countryside, yet, while we have revered and protected other historical waterbodies such as moats, field ponds have been largely ignored. It is, however, the existence of ponds in the wilder and less chemically doused countryside of the past that is key to their great current value to conservation.

The age of pond decline and loss

It is possible that traditional pond management was fading away by the mid-20th century, and perhaps earlier. In an astonishingly detailed survey of Norfolk's pits and ponds, Prince (1964) noted that the vast majority were 'overgrown with shrubs and trees, some of which have stood undisturbed for more than a century'. Remains of leaves, twigs and thorns preserved in dated cores from Norfolk ponds also suggest accelerated terrestrialisation as the 1900s progressed, especially after the 1950s–70s (Emson 2015; Walton *et al.* 2021a). Certainly, most remaining ponds in the farmlands of East Anglia today are shrouded by trees, especially Grey Willow *Salix cinerea*, Ash *Fraxinus excelsior*, Alder *Alnus glutinosa* and thorn (Sayer *et al.* 2013; Sayer & Greaves 2020). Herein lies the major problem for farmland ponds: as they stopped being used by farmers there was no need to keep them open, or indeed to keep them at all. So, while many ponds succeeded to trees, others were filled in as part of a general post-war drive to gain larger and better-drained fields: we call these infilled ponds 'ghost ponds' (see box on p. 480; Alderton *et al.* 2017). Since the late 19th century,

huge numbers (perhaps half) of British ponds have been lost (Heath & Whitehead 1992; Boothby & Hull 1997; Wood *et al*. 2003) and many of Henry Williamson's 'vanishing hedgerows' (as in his film by that name) of the 1970s were similarly eradicated and conveniently disposed of in ponds. Sadly, even today, ponds are frequently filled in to gain what is often poor-quality farmland that is unlikely to produce any kind of crop. Hence, we currently have far fewer ponds than we used to, and remaining ponds are overwhelmingly covered by woody vegetation – the 'ghostly' and the 'ghastly', respectively.

Although tree- and scrub-covered ponds offer habitat for many species (Biggs *et al.* 1994), there is much evidence to suggest that an absence of 'early succession' open-canopy ponds from the landscape results in major reductions in aquatic-species diversity, including among plants (Hassall *et al.* 2011; Sayer *et al*. 2012), dragonflies (Janssen *et al.* 2018) and amphibians (Skelly *et al.* 2014), as well as pond fishes such as the Crucian Carp (Sayer *et al.* 2011). Thus, as stated by Sayer *et al.* (2013), there is an urgent need to restore some ponds to an open state via scrub and mud removal. In Norfolk, since 2014, the Norfolk Ponds Project – a partnership of several Norfolk conservation organisations, local farmers and University College London (Sayer & Greaves 2020) – has been delivering pond restoration in farmland and has, to date, restored over 200 ponds with great success. In Suffolk, driven especially by Suffolk Wildlife Trust, several hundred ponds have been restored since the 2003–2006 Suffolk Pond Project surveyed an initial 1,000 ponds. Much has been learnt from this work, in both practical and scientific terms.

Principles and practicalities of farmland-pond restoration

In intensively managed farmland with ponds that are predominantly covered by scrub, there is generally a low risk of damaging farm-scale biodiversity by restoring ponds; rather, there is a huge amount to gain. Consensus exists that species diversity in pond landscapes is greatest where between-pond environmental differences are maximised and, in this respect, having ponds that vary in terms of shading and successional stage is crucial (Sayer *et al*. 2012). It is therefore beneficial to leave maybe 20–30% of ponds in a patch untouched, and to carry out restoration in a staggered way (working on a few ponds each year) rather than tackling them all at once. In selecting ponds to work on, it is generally best to prioritise those that are not strongly fed by polluting pipes and ditches that drain arable land. Restoration can still, however, be effective for ponds with inflows that drain unimproved meadows and other semi-natural land, or where drains coming from arable can be deliberately broken. Ponds which contain valuable veteran trees should also be avoided, as felling would be inappropriate given their individual historical and conservation value.

The best time to restore very neglected ponds is between late August and the end of October, which is largely after the bird breeding season and at a time when ponds are dry or have low water levels, making it easy to work with a digger and allowing access to more pond mud. At this time of year, there is also the opportunity to spread extracted spoil on to autumn stubbles. It is important to retain some mature trees, scrub or Bramble *Rubus fruticosus* around a pond, as many species (especially amphibians, bats and birds) greatly benefit from the presence of some tall vegetation next to the water. It is crucial, however, to open the canopy significantly so that pond shading is low, at perhaps <10–20%. Trees and scrub should generally be removed from or coppiced along at least 50–75% of the pond margin, with a particular focus (if possible) on the southern and western sides in order to maximise the light reaching the pond. When large trees are present in the wet basin they can be removed using a digger, but it is important not to pull out trees from the dry banks of a pond as this disturbs the ground and hence archaeological integrity.

When excavating an old pond, only soft mud should be removed, ideally by using a toothed digger-bucket. Contrary to previous advice advocating pond-reprofiling, clay or hard bankside material should not be removed to alter a pond's shape and slopes. Because old pits were all dug differently, re-excavating a pond to its former dimensions leads to all sorts of morphologies and hence increased habitat diversity and species richness. In this way, biodiversity potential is optimised and history is respected.

When excavating soft silt, look for any sediment layers containing abundant remains of water plants and freshwater invertebrates (especially molluscs) and aim to leave some of this material in situ, as it will hold long-lived seeds of wetland plants (see box on p. 480). To maximise benefits, however, aim to remove the soft mud from at least three-quarters or more of the pond's area. This material can be spread thinly, ideally on stubble, where it can be ploughed directly into the soil – a momentary resetting of the clock to a 16th-century farming system. It may also be worth throwing one or two larger bits of wood back into the edges of a pond after restoration in order to create habitat for specialist invertebrates and fungi. A margin of at least 10m is ideal as a buffer against farm sprays and drainage.

Once restoration is complete, it is crucial to allow natural plant recolonisation of a pond and its margin and to resist the temptation to seed or plant plugs. By allowing nature to drive recovery we have found that no two restored ponds are alike, which makes the whole process exciting as you never quite know what to expect. After restoration, it is important to introduce regular small-scale management (every 3–6 years, depending on pond size) to clear scrub regrowth, which can easily be done by brush-cutter, hedge-cutter or chainsaw. The pond margin can also be cut at the same time if desired – a messy cut is better than a tidy one, as it produces greater habitat variation. Using a

Resurrecting ghosts

A 'ghost pond' is a pond lost to infilling – buried alive, but living on! Ghost ponds can be found by comparing old maps (First Edition Ordnance Survey maps are particularly useful) and modern maps. They are usually easy to locate on the ground (see photos opposite), visible as slight topographic depressions, as dark patches of soil and/or as crop marks owing to plants growing faster or slower (or not at all) compared with the rest of the field. Recent research by Alderton *et al.* (2017) has shown that many wetland plants (especially stoneworts and pondweeds) retain viable seeds in pond deposits beneath agricultural fields, even after burial for more than 150 years. Resurrected ghost ponds quicky fill with aquatic vegetation, sometimes including very rare species (see box on p. 484).

Resurrecting a ghost pond is a quick way of improving biodiversity for very little loss of land (and yield). It is hoped that the new Environmental Land Management (ELM) scheme and all future agri-environment schemes will embrace pond resurrection, as we urgently need to dig out 'ghosts' and stop the infilling of ponds, which sadly still happens.

Excavation and revival of a ghost pond, showing the site prior to excavation with the ghost-pond outline highlighted by white dots (a), sampling the historical sediment layer in a test trench in September 2013 (b), ghost-pond sediment containing subfossil remains of molluscs (c), and the pond one year after excavation, in September 2014 (d), and three years on, in summer 2016, showing abundant beds of Broad-leaved Pondweed (e). Carl Sayer

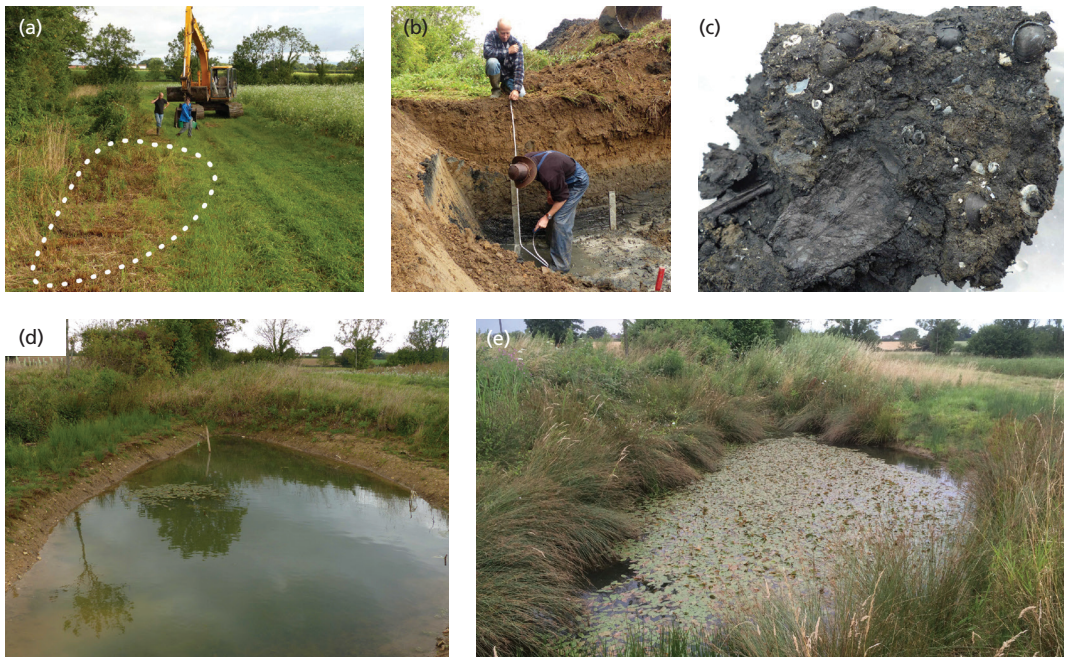


Figure 1. The story of a mid-Norfolk pond as restored by Norfolk Ponds Project in 2016, showing the overgrown pond before restoration in summer 2015 (a), during restoration in September 2016 (b) and two years after restoration in June 2018 (c and d give different angles). Carl Sayer

digger to carry out opportunistic 'patch-scraping' of previously restored ponds can be very helpful in removing dominant plants (especially Bulrush *Typha latifolia*), as well as creating bare substrate that allows less competitive and rarer plants to thrive and set seed. Pond management should ideally be done on a rotational basis, with a few ponds worked on every year (Sayer *et al.* 2013), as elegantly demonstrated by the late Richard Waddingham and advocated by Thomas Tusser as far back as the 1500s.

Benefits of pond restoration

Studies by the Norfolk Ponds Project have demonstrated, unequivocally, that restoration of tree-shrouded ponds by major scrub and mud removal significantly increases the diversity of wetland plants and invertebrates both within ponds and in wider pond landscapes. Recolonisation by wetland plants is astonishingly quick (Figure 1), and after just one to two years ponds become filled with a rich variety of aquatic and marginal plants. In East Anglia, stoneworts (Characeae) are often dominant components of the vegetation in the early years, after which species such as Broad-leaved Pondweed *Potamogeton natans*, Soft Hornwort *Ceratophyllum submersum*, Rigid Hornwort *C. demersum* and Common Water-crowfoot *Ranunculus aquatilis* take over. All evidence suggests that, following restoration, ponds are dynamically stable; in other words they remain dominated by plants, but community composition regularly changes, probably owing to the 'resetting' effects of pond management and dry-year drawdown events (after which stoneworts often return in abundance). It is vibrant botanical chaos!

When we started our research work on farm-pond restoration, one school of thought posited that these ponds would be too heavily polluted and that any increases in plant diversity would not be sustained over time. This has clearly not been the case in East Anglia, and monitoring of restored ponds thus far shows that plant diversity actually continues to rise over time (Figure 2), particularly in shallow-water and

Figure 2. Changes in wetland-plant species richness following restoration through major scrub and mud removal in Norfolk farm ponds. Data from Baker (2020).

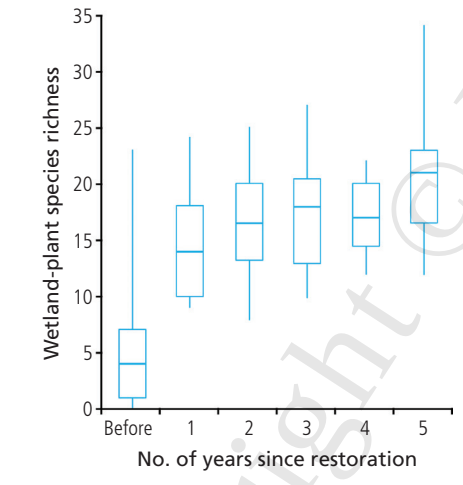


Figure 3. A mid-arable Norfolk pond before (a), during (b) and two (c) and six (d) years following restoration via major scrub and mud removal by the Norfolk Ponds Project. Carl Sayer

shoreline communities (Baker 2020; Figure 3). Many locally scarce wetland plants have emerged after our pond restorations, including Water Violet *Hottonia palustris*, Fine-leaved Water-dropwort *Oenanthe aquatica* and Flowering Rush *Butomus umbellatus*, as well as the nationally scarce Clustered Stonewort *Tolypella glomerata*, the Schedule 8 Holly-leaved Naiad *Najas marina*, Tassel Stonewort *Tolypella intricata* and Grass-poly *Lythrum hyssopifolium*, and also, remarkably, Slimy-fruited Stonewort *Nitella capillaris*, which was thought to be extinct in Britain (see box on p. 484). Apart from Holly-leaved Naiad, which probably arrived via dispersal from a nearby shallow lake (Lansdown *et al.* 2016), it is almost certain that disturbance of old, still viable seed banks is key to the return of these plants. From our work on ghost ponds (see box on p. 480) we know that many wetland plants, especially stoneworts and pondweeds (Potamogetonaceae), have propagules that can remain buried alive for centuries. Thus, old, seemingly defunct ponds can be viewed as portals via which rare wetland plant species re-emerge – the most astonishing of plant insurance strategies. While newly created ponds can

Holly-leaved Naiad (left) and Grass-poly (right) are among the scarce plants that have colonised newly restored ponds in Norfolk. Robin Chittenden www.robinchittenden.co.uk (left); Nature Photographers Ltd/Alamy Stock Photo (right)

Return of the Slimy-fruited Stonewort

In 2018, a farm cluster group was formed in the parish of Bramfield, Suffolk, and some farm ponds, restored as part of a Countryside Stewardship agreement, were surveyed to guide future management work. As part of this survey, Juliet Hawkins, remarkably, discovered Slimy-fruited Stonewort, a species thought to have been extinct in Britain since 1959. This unattractively named, yet intricately beautiful species had been recorded with absolute certainty from one ditch in Cambridgeshire (near Sutton Gault) by Alfred Fryer of Chatteris, with scrub encroachment likely leading to its demise at this site (Stewart & Church 1992). Clearly, however, this species used to be more widespread. Since 2018, Slimy-fruited Stonewort has been found at a further six ponds in east Suffolk, including a ghost pond resurrected in 2019 as part of a cross-border operation by the Norfolk Ponds Project. Other rare stoneworts have also been encountered in the Bramfield cluster and nearby restored ponds, including Tassel Stonewort and Clustered Stonewort. Disturbance of long-lived but still viable oospores is undoubtedly the reason for the return of these rare wetland plants.

Slimy-fruited Stonewort (a) rediscovered in Britain, after more than half a century of hiding from botanists, by Juliet Hawkins, seen here (b) fossicking for stoneworts in a pond that produced Slimy-fruited Stonewort in Suffolk. Chris Carter (a); Tim Pankhurst (b)

soon become wildlife havens, they cannot directly bring lost plants, sometimes with locally distinct genetics, back into the landscape, hence the need to treasure old ponds.

Our studies of pond invertebrates have been equally encouraging, revealing that restored farmland ponds can support an exceptionally high number of species, comparable to 'flagship' ponds on nature reserves. For example, at Manor Farm, Norfolk, where management maintains a mix of early- and mid-succession ponds (Sayer *et al.* 2013), freshwater-invertebrate richness averages around 70 species per pond, and exceeds 90 species in some, while neighbouring scrub-covered ponds support less than half this number. Further, despite the massive disturbance caused by scrub and mud removal from ponds, this has not been shown to result in the loss of rare species from the pond landscapes we have studied.

Dragonfly populations have been observed to explode following pond restoration, with an astonishing 17–18 species recorded at some Norfolk ponds within three years of restoration and several sites now harbour strong populations of the Scarce Emerald Damselfly *Lestes dryas*, a nationally rare species. Responses of amphibians to restoration have also been impressive. Monitoring of 50 ponds restored by Suffolk Wildlife Trust between 2003 and 2006 showed an increase from 19% to 42% in the number of sites with Great Crested Newt *Triturus cristatus* eggs one year after restoration, suggesting that this species, which struggles to breed in highly shaded ponds, quickly takes advantage of restored ponds for breeding.

The enormous conservation value of farm ponds becomes even clearer when other pond-using wildlife is considered. In an emergence trap study we showed that the abundance and biomass of aquatic insects (especially among non-biting midges and mayflies) in restored ponds were respectively 18-fold and 25-fold higher than in unmanaged tree-covered ponds (Lewis-Phillips *et al.* 2020). To farmland birds, this is valuable high-energy food; our studies have shown that the number of

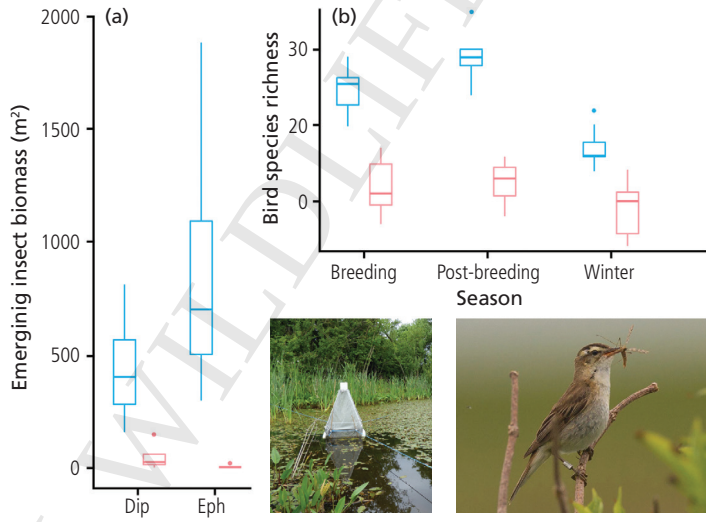
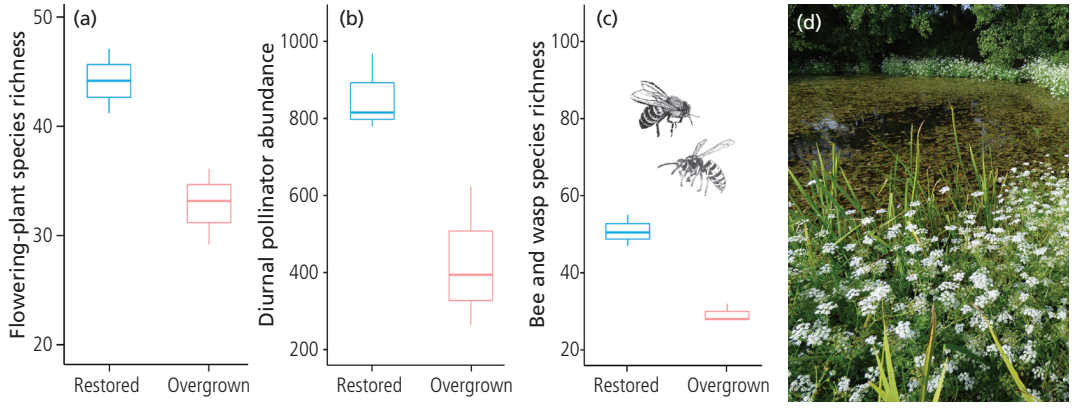


Figure 4. Biomass of Diptera (Dip) and Ephemeroptera (Eph) captured in emergence traps at restored (blue) and overgrown (red) Norfolk farm ponds (a), as well as bird species richness recorded at the same sites in three seasons (b). In (b), breeding season is April to June, post-breeding season is July to September and winter is December to February. Data from Lewis-Phillips *et al.* (2019b, 2020). Jonathan Lewis-Phillips

bird species using restored ponds is double that of overgrown ponds (Figure 4), while the former also support significantly higher bird abundance, foraging activity and expressions of parental behaviour (Davies *et al.* 2016; Lewis-Phillips *et al.* 2019a). Occasionally, often as the sun comes out after summer rain, large mixed flocks of Swallows *Hirundo rustica*, Swifts *Apus apus* and House Martins *Delichon urbicum* have been seen to drop down over our ponds and predators such as Hobby *Falco subbuteo* have also been drawn in at these times, leading to exciting aerial battles. Insect food is clearly the big attraction for many birds, but improved access to muddy pond edges, nest-building materials (mud and plant matter) and drinking water probably add to the appeal of open-canopy ponds. Red-listed farmland birds, including Linnet *Carduelis cannabina*, Skylark *Alauda arvensis* and Yellowhammer *Emberiza citrinella*, among many others, have been demonstrated to be far more abundant at restored ponds (Lewis-Phillips *et al.* 2019a,b) – ponds have been greatly undervalued in farmland-bird conservation.

We closed our 2013 *British Wildlife* article with a description of a restored pond, in August, 'buzzing with bees and butterflies on flowering plants and bramble'. As ponds are opened to the light by restoration work, the slope from field to pond edge is quickly colonised by a multitude of wildflowers, particularly in shallow-shelving and temporary ponds. Our research (Figure 5) has shown this increase in insect-pollinated plants to enhance significantly both the abundance and the richness of diurnal-pollinator communities, especially among bees and wasps (Walton *et al.* 2021b), as well as increasing the complexity and

Figure 5. Differences between restored (blue) and overgrown (red) farm ponds for flowering-plant (both wetland and terrestrial) species richness (a), diurnal pollinator abundance (b) and bee and wasp species richness (c). Photo (d) shows a mass of flowering Fine-leaved Water-dropwort surrounding a pond at Manor Farm, Briston, Norfolk. Data from Walton *et al.* (2021b). Carl Sayer



Research demonstrates that red-listed farmland birds such as Yellowhammer benefit greatly from the restoration of overgrown ponds. FLPA/Alamy Stock Photo

hence stability of pond-based plant–pollinator networks (Walton *et al*. 2021c). Bramble and plants such as Water Mint *Mentha aquatica* and Gypsywort *Lycopus europaeus* are key late in the season, when restored ponds really do hum with insects. Thus, restoring open-canopy conditions to some farm ponds provides increased food resources for pollinators, offering obvious benefits to farmers.

The clear message from this large body of research is that restoring farm landscapes, such that they support mosaics of ponds at different stages of succession, would be transformative in both wetland and farmland conservation. The restoration of scrubbed-over ponds, resurrection of ghost ponds and the creation of new ponds should all be fully embraced. We have a strong, evidence-based, multi-species approach to pondscape restoration that can now be followed.

A new future for British lowland farm ponds?

Farm ponds have suffered from an image problem in the recent past, and there has been much scepticism associated with their restoration and management. Now, with greater awareness of the wildlife and landscape value of farm ponds and with good science-based guidance on how to restore them, could we see a new golden age for farmland ponds? In Norfolk and Suffolk, all evidence suggests that pond restoration can be successful even within intensively farmed land. From recent work in Cheshire and Lancashire, it appears also that the approach outlined in this article is likely to succeed on farm ponds all over lowland Britain. An agri-environment advisor once told one of us that farmland conservation urgently needs to shift emphasis to protecting old and ancient habitats as opposed to creating new ones, as you simply cannot create the ancient. Following this line of thinking, we urge anyone involved in drawing up future stewardship schemes to place old farm ponds at the centre of their plans. Richard Waddingham, the farmer who inspired the Norfolk Ponds Project and the focus of our 2013 *British Wildlife* article, sadly passed away recently. During Richard's 50 years at his beloved Manor Farm, he very surely concluded that 'ponds are the most important farmland habitat'. We must heed his words.

Acknowledgements

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