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Big Pond Dip – Results from 2009-11

First of all, a big thank you to everyone who participated in this year's Big Pond Dip. We've had a great response – with over 1000 people now participating in our online pond surveys since we started them. This has helped us find out more about the ponds that are right outside our back door(s), and beginning to suggest some answers to the many puzzles that surround these apparently familiar habitats.



You can grow sensitive water plants in garden ponds, if the conditions are right. This pond has two species of stonewort growing healthily, some of our most sensitive water plants

Photo © Jeremy Biggs

Putting together the results for the past three years - 2009 to 2011 we're increasingly confident about some of the early trends we saw.

Garden ponds are supporting a good variety of wildlife!

Three quarters of the ponds surveyed had water snails, water beetles and pond skaters, and two-thirds of ponds had breeding dragonflies or damselflies. Now we need to know more about which species are visiting our ponds: if we were talking about birds it would be like saying we've got tits and thrushes visiting most gardens. True, but there's a lot more to it.

Nine out of ten ponds were visited by amphibians - and about two thirds had amphibians breeding. These were predominantly Common Frogs. Less often seen were: Smooth Newts (in 34% of ponds), Palmate Newts, (13% of ponds), Great Crested Newts (6% of ponds) and Common Toads (in 14% of ponds).

However, the most sensitive creatures were not so widespread, and the fussiest of these - caddis flies and alderflies, were found in less than a quarter of the ponds.

Good quality ponds are good for amphibians too

A pond with a 'good' or 'excellent' invertebrate score is twice as likely to have newts or toads breeding, compared to a poor or moderate pond. Quality is not so important for Common Frogs: half of even the poorest ponds had breeding frogs. But on the whole, it looks as though the better the quality of the garden pond, the more likely it is to have breeding amphibians.

This interesting finding is something we'll be trying to find out more about.

Clear water ponds are good for wildlife

The survey shows that clear water garden ponds had more diverse invertebrate communities than more cloudy and turbid ponds.

And plants provide homes

Garden ponds with all three types of water plants (marginal, floating-leaved and submerged) had a greater variety of animals than ponds with only one or two plant groups. We know this is true in bigger ponds in the countryside, but we weren't sure it would apply in the garden – and it's not really been part of the standard advice up to now.



Smooth Newt tadpole (or 'eft')

Photo © Neil Phillips

Small may be beautiful, but it's harder to keep the tiniest ponds in really good condition

The Big Pond Dip results suggest it's harder to keep small and medium-sized ponds in really good condition than big ponds. Of the tiniest ponds, those that are less than 1 m x 1m - only two in every 100 were in 'excellent' condition.

This rises to 9 in every 100 medium-sized ponds in excellent condition, and 25 in every 100 bigger ponds. So small and medium sized ponds, will probably need more tender loving care to keep them in tip-top condition.

For amphibians, the very smallest ponds can provide useful habitat but medium-sized – that is up to 5 m x 5 m and above are preferred: Common Frogs were most likely to be found breeding in medium-sized ponds, and newts and toads were reported most often in medium and large-sized ponds.

Fish aren't necessarily a bad thing - unless you are a water beetle or a newt!

The Big Pond Dip found a small reduction in pond quality associated with fish, but interestingly two of the most sensitive invertebrate groups, caddis flies and alderflies, were as likely to be seen in ponds with fish as without. Pond skaters were even recorded slightly more often from fish ponds. The group that appeared to be most affected by fish was the water beetles.

Surprisingly, Common Frogs were recorded slightly more often breeding in fish ponds: though probably most of the tadpoles ended up as fish food.

Newts were less often found breeding in fish ponds, particularly Palmate and Great Crested Newts. Common Toads showed their well-known preference for fish ponds in the Big Pond Dip results. They bred in 20% of fish ponds in gardens but only 11% of fishless ponds.

However, given that fish eat frog and newt tadpoles, avoiding only the unpleasant-tasting tadpoles of toads, it seems very likely that fish ponds would still generally produce fewer young frogs and newts than ponds without fish.

What can we do to make garden ponds even better wildlife habitats?

- Plenty of plants: the Big Pond Dip showed that ponds with all three plant groups had a larger number of animal groups.
- Ponds that are good for invertebrates are more likely to be good for amphibians.
- Provide clean water – if your water is clear, you will usually have more diverse wildlife communities.
- Fish and other animals can co-exist, but if you want to encourage water beetles and newts, particularly the less common Palmate and Great Crested Newts, then you will need to create an additional fish-free pond.

Something to think about!

One way of determining the impact of fish and amphibians would be to look for froglets, toadlets and newt efts emerging from the pond during the summer. This would confirm how successful they have been. If you see them, then tell us about it.

You can download a more detailed report from our website at:

<http://www.pondconservation.org.uk/bigponddip/Big+Pond+Dip+results+from+2009-2011>

Species spotlight – making ponds for otters

Otters use ponds as well!

Amongst a variety of new pond projects in Wales the Million Ponds Project team have been digging ponds for Otters. Working with the Teifi Rivers Trust in Carmarthenshire, a group of six new ponds has been located alongside a stream regularly frequented by otters; so regularly that otter spraint was found nearby on the second morning of digging. Intended mainly to provide a food source – particularly Common Frogs (sorry frogs!), other protected species that are also expected to benefit from these new ponds are Common Toad, Grass Snake, European Eel and several species of bat, as well as a wide range of more common animals and plants.



Digging new ponds for Otters in Camarthenshire

Photo © Becky Good

Like virtually all Million Ponds Project ponds, the new ponds are unlined, created in an area where any hole dug into the ground will naturally hold water and follow the methods set out in our pond creation toolkit.

www.pondconservation.org.uk/millionponds/pondcreationtoolkit

More about otters - A species back from the edge of extinction

Thirty years ago otter populations in Britain hit a crisis point, with a 95% decline from levels in the 1950s, leading to fears of complete extinction in

England. Much of this was attributed to pesticides, notably the powerful organochlorines aldrin and dieldrin, and hunting.

Despite banning organochlorine pesticides in the mid-Sixties, otters continued to decline, and by the end of the 1970s, they had effectively vanished from England except in the West Country and parts of Northern England (although healthy populations remained in Wales and Scotland). There is now substantial evidence to suggest that the ecosystem takes rather longer to clear itself of toxins, such as the organochlorines, than was previously thought, so this would have been a key factor, coupled with the otter's own localised habit and low breeding rates, which meant that any substantial widespread recovery was always going to take time.

A hunting ban in 1978 helped preserve the Otters that were left, and otters are currently protected under the Wildlife and Countryside Act (1981), and the Conservation of Habitats and Species Regulations (2010). Less river pollution from sewage works, coupled with the ongoing reduction in the residues of the most toxic pesticides, and a relatively small-scale reintroduction programme, means that many rivers right across Britain are now once again seeing otters building holts. And, for the first time in a generation, otters are also being seen in our cities including Bristol, Birmingham, Manchester and even on the Thames.



Otter (*Lutra lutra*)

Photo © Natural England

The Biology of Otters

Otters are members of the Mustelid family which includes badgers, polecats, martens, weasels, stoats and mink.

Most otters live for around only three to four years in the wild (in captivity they can live for up to 15-20 years). Mortality is highest among young animals

that are still looking to establish their own territories, and the most common natural cause of death is likely to be starvation. For adult otters it is estimated that almost 70% of deaths can be attributed to traffic accidents, particularly where a road cuts across an otter's territory. Other common causes of death are from territorial fighting, or drowning in fish and crustacean traps. An additional hazard for coastal otters is also oil spills.

Otters can breed at any time of year. Females normally breed in their second or third year and built a quiet holt, which they line with grass or moss before giving birth to two to three cubs. The cubs are helpless for the first 6 weeks of their lives, relying entirely on their mother's milk, and remain in the holt for about three months, until they develop their adult waterproof coat. At this stage their mother teaches them to swim. Although to begin with they are often reluctant to go into the water, and may have to be pushed in, they soon become proficient and can be seen enjoying sliding up and down muddy river banks. The family splits up when the cubs are about a year old and completely self-sufficient, and they start looking for territories of their own.

Male otters occupy separate holts and play almost no part in the rearing of the young.

Otters as hunters



European Eel (*Anguilla anguilla*) – an otter favourite

Photo © (credit) copyright Philippe Boissel

Otters are strong swimmers and nocturnal hunters, and can travel long distances searching for food – with reports of up to 17 km in a single night. Otters spend much of their day on dry land, for example in scrub or areas of long grass, or in underground

'holts' – for example, cavities under tree roots and dry drainage pipes.

The bulk of the otter's diet is fish (usually 75-95%), including eels, which are a special favourite. They will also eat amphibians, crayfish and other crustaceans, waterfowl and small mammals. Amphibians can be a substantial part of the diet in spring, which is one of the reasons that we have been making ponds for otters. Otters are opportunistic feeders and show no strong preference for one fish species over another, usually opting for whatever is most freely available. They catch and eat predominantly live animals, although they will eat dead fish on occasion.

Habitat

Otters have been recorded from virtually every type of water body including freshwater and coastal systems, and covering a wide range of habitats including rivers, lakes, ponds, open marshy places, and seashores and estuaries.

In freshwaters, an otter's territory usually includes a stretch of river as well as its associated tributary streams, ditches, ponds, lakes and woodland. The size of an individual territory depends largely on the availability of food and shelter, and the presence of neighbouring otters. On rivers, a male's territory can extend up to 40km; females having smaller territories that favour quieter locations like tributary streams for breeding. In coastal areas this would be smaller – perhaps just 3-4km. Otters without an established territory are known as 'transients'. These are mostly juveniles or adults that have been pushed out of their territories. Transient otters are very important in extending the range of otter populations during the recovery process, and are likely to be the pioneers, colonising new otter-suitable habitats.

Why can't I see otters?

The main reason why otters are not often spotted during the day is that they are mostly nocturnal hunters. Until recently, the main exception to this 'rule' has been coastal otters, especially in Scotland, where the animals' activities are linked to the tides, and they can often be seen during the day. As otters are largely solitary animals with large territorial areas, the likelihood of spotting them is further reduced. However, as otter numbers increase nationally, daylight activity is becoming more common, even on rivers. The RSPB Leighton Moss nature reserve is well-known as a good place to see otters, further south the RSPB reserve on Otmoor,

in Oxfordshire, is also becoming a place for regular otter sightings. In addition, although naturally quite shy animals, the change in attitude to hunting and other forms of persecution, means that otters are becoming less wary of people.

One of the best ways to detect otters, is to look out for their tracks or the droppings or 'spraints' which they use to mark their territories. Most otter surveying is done by looking for these signs – and they are fairly easy to find once you get your eye in. A good place to look is under bridges alongside rivers, which are a favourite sprainting site.



Flagship pond training in Wales: you can't see quite how heavily it was raining!

Photo © Becky Good

Flagship Ponds: pilot project launched in Wales

Flagship Ponds are the best of the best – and include many of the most important sites for freshwater wildlife, hosting some of our most endangered species. We are now developing and testing a new project, working with local groups, to monitor and protect these iconic sites – which at present depend mainly on luck and the goodwill of local land managers and landowners.

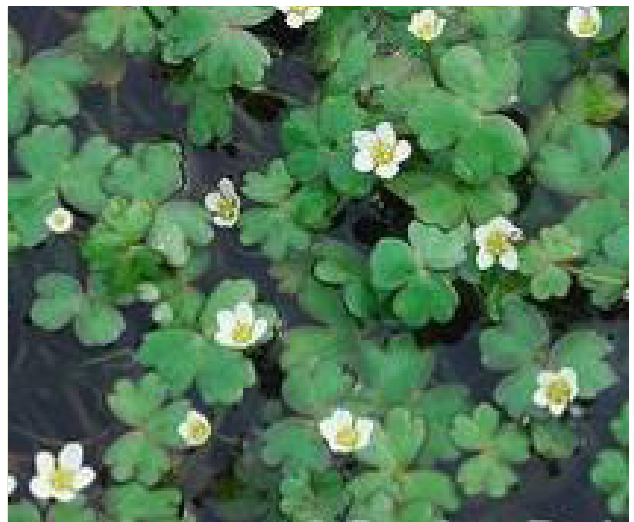
We've been able to start this work in Wales as a result of generous funding by Environment Wales, focusing initially on two areas in west and central south Wales. The first, Dowrog Common, is an area of lowland heathland ponds in North Pembrokeshire renowned for now endangered plants including: Pillwort, Three-lobed Water-crowfoot, Yellow Centaury and Lesser Water Plantain. These plants need clean, often slightly acid, water something that's as rare in Wales as elsewhere. Near to Brecon the second site, which comprises Brefcha

pool and other mawn pools, also provides a refuge for clean water endangered species including the Mud Snail and, again, Pillwort.

The project aims to protect these 'best of the best' ponds sites through simple monitoring which will act as an early warning system to raise the alarm if there are threats or changes to a pond. Volunteers will be trained in the use of the monitoring techniques which will be completed via an online form and, if threats are identified, this will raise the alarm with environmental professionals.

The first of the training courses have been held with 14 keen volunteers, who braved some of Wales's worst weather to come out and test the methods. After learning the techniques together, we surveyed a pond at Dowrog and also Brefcha Pool. Volunteers carried out simple tests on the water quality and looked at surrounding land uses, noting key rare species, to complete the assessment. The course has already highlighted some potential threats at Brefcha, but found that the pond at Dowrog is currently well protected by surrounding habitat buffer strips.

Pond Conservation are now developing the monitoring form incorporating comments from the volunteers who have trialed it. The form will be online soon, and we are now preparing funding bids to roll out the Flagship Ponds Project across the whole of the country.



Three-lobed Water-crowfoot (*Ranunculus tripartitus*): this endangered plant needs clean, shallow and seasonal ponds

Photo © Stephen Davis

Million Ponds Project – Biffaward Pond Digging Fund news

Million Ponds Projects in Wales

Becky Good and the Million Ponds Project partners in Wales have been busy creating lots of new ponds, using a range of methods. One more unusual technique was employed at a site in Pembrokeshire where we are working together with CCW to create the very specific, small shallow pools required by the highly endangered Three-lobed Water-crowfoot (*Ranunculus tripartitus*).



It looks like nothing more than a tiny puddle but this small pool is perfect for the endangered Three-lobed Water Crowfoot in Pembrokeshire

Photo © Becky Good

This is a small winter annual with the white 5-petalled flowers typical of the water-crowfoots. However, the Three-lobed Water-crowfoot only grows in clean shallow water, and on the wet mud of small temporary pools. Indeed it is so well adapted to the ephemeral nature of its habitat that it flowers early in the year before its muddy pools dry up. Unfortunately, this is a type of habitat is now rare in throughout the natural range of the plant in Britain, and as a consequence this pretty little plant is severely endangered and only really survives because of constant conservation efforts. Without the kind of help being given by the Million Ponds Project this plant would disappear from Britain.

In Pembrokeshire, pond creation for Three-lobed Water-crowfoot involved winching out encroaching willow scrub leaving small hollows where the root ball was. These will fill with ground water, creating the perfect temporary home for it. New ponds for

Three-lobed Water-crowfoot will also be created over the winter on the Lizard Peninsula in Cornwall, in association with the National Trust and the Cornwall Wildlife Trust.

Creating Ponds for Amphibians in the North West



Pond Creation at Windybank in Greater Manchester

Photo © David Orchard

David Orchard, our Amphibian and Reptile Officer is supporting a wide variety of pond schemes for amphibians as part of the Million Ponds Project. We are working in partnership with the Forestry Commission at two sites in the North West: Windybank Wood, near Leigh in Greater Manchester, and Upper Moss Side near Warrington. We've created 18 new ponds and scrapes at Windybank Wood benefitting our native amphibians - frogs, toads, smooth and palmate newts, as well as dragonflies and other invertebrates, and wading birds such as snipe.



Redshank

Photo © Stephen Burch (www.stephenburch.com)

The ponds at Upper Moss Side, which lie alongside the River Mersey, are already attracting a range of birds hunting for insects and other prey on the muddy edges. As they naturally vegetate, it is hoped that water voles from nearby ditches will also colonise the banks, and that the deeper ones will benefit toads. They will also provide water for the small herd of Longhorn Cattle that graze the site, and in their turn help create great habitat for pond creatures by trampling or 'poaching' the edges. It's only a matter of time before the Little Egrets that are already in the area, move in following the cattle.

For more information about the project or to consult or download the Pond Creation Toolkit, visit www.pondconservation.org.uk/millionponds

The record breaking '50 Pond Challenge'



The 50 Pond Challenge Team

Photo © Neil Philips

We are delighted to announce a new record. The 50 Pond Challenge team dug a total of 50 new clean water ponds in just 8 hours, which isn't bad going, considering that it was all by hand, and the ground was solid clay. But we had a great team, bringing together lots of the key conservation organisations with amphibians and reptiles right at the top of their agenda: Pond Conservation (Million Ponds Project), ARGUK, Amphibian and Reptile Conservation, London ARG, Essex ARG and the students of Writtle College. A big thank you to everyone that helped.

These new ponds, created on an existing reserve in Nevendon, Essex, will create additional vital habitat for amphibians and fresh water invertebrates in this area. One of the local rarities that we are hoping to attract is the nationally scarce, Great Silver Water

Beetle (*Hydrophilus piceus*). Despite its impressive size – it vies with the Stag beetle as the UK's largest beetle – measuring almost 5 cm in length, it is threatened by loss of its habitat. It prefers to live in the unpolluted waters of ditches and ponds on ancient coastal grazing marshes, an extremely vulnerable habitat threatened by pollution from farms and towns on the landward side, and squeezed into an ever narrowing strip of the coast by rising sea levels. Now Great Silver Water Beetles are all but confined to the Somerset Levels and the coastal marshes of Sussex, Kent, Essex and Norfolk.



The Scarce Emerald Damselfly

Photo © Neil Philips

The other rarity that we are hoping to attract is the Scarce Emerald Damselfly (*Lestes dryas*), which lives almost exclusively in the eastern part of Britain, with strongholds in the coastal marshes of Kent, Essex (around the Thames Estuary), Norfolk and Lincolnshire.

We are also providing homes for some of our more familiar aquatic residents including amphibians such as the Common Frog and Common Newt. Although 'common' these species are also finding it tougher to survive in Britain's countryside today, and it is only by creating new habitat that we can ensure that healthy populations will survive into the future.

The ponds created reflect our key 'Million Ponds Project' principles:

- Creating a mosaic of ponds – some large, some as small as 1m², providing homes for a range of creatures and creating a series of 'stepping stones' to allow populations to spread over larger areas;
- Clean, unpolluted water; and

- Not too deep - with shallow gently-shelving margins, which will be rapidly colonised by aquatic plants, so providing lots of habitat for invertebrates and amphibians

As an added bonus we are hoping to get into the Guinness Book of Records, which we hope will spur other groups to break our record, thereby creating even more countryside ponds.

Support the Million Ponds Project with our perfect Christmas gifts for pond lovers

Once again we are launching our seasonal ethical pond gift giving scheme 'Give and Let Live'.

Each £1.00 that you give, will allow us to unlock a further £10.00 from our pond digging fund, creating lots more very special places for our precious aquatic creatures.



Just pick one of the eleven amazing and wonderful creatures that you think will warm the heart of your loved ones – from our seriously endangered Spangled Water Beetle, to our most cuddly Water Vole.

We'll send you a greeting card and a special gift certificate with lots more information about your chosen creature, and how we are working to create new homes for it, for you to send on.

The money you gift will go directly to the Million Ponds Project; creating an extensive network of new ponds across the UK, reversing a century of pond loss, and ensuring that once again the UK has over one million countryside ponds. For more information please visit our web-site:

<http://www.pondconservation.org.uk/supportus/Give+and+Let+Live+-+Ethical+Pond+Gifts>

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