

Pond Conservation

For Life in Fresh Waters

Summer Newsletter August 2010

Welcome to our summer newsletter.

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 - Spotlight on mammals – bats and water shrews
 - Million Ponds Project Update

What to look out for in your pond in August and September

Wigglies: worms, fly larvae, leeches and flatworms

In the 'Big Pond Dip' we lump together all worms, fly larvae, leeches and flatworms as "wigglies": pond animals which – let's be honest – most people are not too keen on. But our prejudice against nature's naturally legless is without doubt a slur on a huge variety of beasts that are, in the famous words of the Hitchhikers Guide to the Galaxy, 'mostly harmless'. Most flies don't bite (not even *most* mosquitoes) and most worms wouldn't hurt a fly! As for leeches, it's only on TV that you need to worry about them sucking your blood. In Britain, the only one that could - the Medicinal Leech - is restricted to some of our best clean water ponds – for example in the New Forest and the Lake District - so that coming across them always gives us a special thrill.

Flies, worms and leeches also get a bit of a bad press because, as well as being a natural and varied part of the life in the best of ponds, quite a few are just as at home in the very muckiest of spots: including farmyard slurry, the black mud you get at the edge of more overgrown ponds and rivers polluted by untreated sewage.

Many of these animals are nature's hoovers – gobbling down rotting organic matter in the most unlikely of spots – or like the leeches and flatworms, feeding on those that do. But the 'wigglies' are such a diverse group of animals that you can find just about every

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Although the Drone Fly (*Eristalis tenax*) looks a bit like a bee, it's actually a hoverfly. These furry flies are a welcome sight all year round but the larvae - a classic rat-tailed maggot - will win no prizes in a beauty contest. If you want to learn more about hoverflies there is an excellent field guide by Alan Stubbs and Steve Falk.
(Photo copyright Denis Greenough).

possible different way of living amongst them: from docile grazers to fierce predators.

Because many of these animals look rather similar, it can be a bit of a shock to realise that there are more different kinds of these creatures living in freshwater – especially the flies – than any other kind of animal. So take a closer look at those pretty yellow and black stripy hoverflies as they dash over the pond, the delicate little non-biting midges (the clue is in the name!) with their feathery antennae that are some of the earliest colonists of every pond, and the gangly Phantom Cranefly (*Ptychoptera sp.*), which looks like a more delicate version of the familiar daddy long-legs.

Then peer down onto the murky depths of your pond, and identify their larvae. The bright red larvae of non-biting midges – there are many different kinds but we commonly call all the red ones blood worms – live in the oxygen-poor bottom of the pond, the haemoglobin they use to maximise their oxygen uptake giving them their distinctive red colouration. A different strategy has been adopted by the true ‘ugly duckling’ of the pond, the creature that’s so ghastly that they named it horribly twice: the Rat-tailed Maggot. Rat-tailed Maggots are larval hoverflies which have a distinctive telescopic breathing tube like a snorkel, allowing the larva to breathe air while still submerged. The tube is usually only about as long as the maggot's body, but it can be extended up to 15 cm to reach the water surface. Ultimately, this rather ugly creature will metamorphose into more friendly-looking Drone Fly (*Eristalis tenax*), so called because it mimics the male honey bee – but unlike a bee, it won't sting you.

Spotlight on Mammals

Much of Pond Conservation’s research focuses on freshwater plants and aquatic invertebrates, but we don’t overlook the many mammals that depend on ponds as a place to live, or hunt, or just to visit for an occasional drink.

The mammals most associated with ponds are water voles, water shrews, bats and otters (which particularly hunt in ponds to feed their pups). Many of these mammals, including five species of bat, are designated Biodiversity Action Plan species (BAP), and are considered to be ‘at risk’ in Britain. So ponds provide a vital role in sustaining these vulnerable species.

Bats



Fresh water is an important resource for all bat species in the UK. Bats drink from open water surfaces and many species also forage on aquatic insects, like caddis flies, crane flies, midges and mosquitoes, as they emerge from the water. Creating and managing ponds to benefit bats should lead to, not just increased levels of overall bat activity, but also increased species diversity.

Brown long-eared bat drinking,
(Photo copyright Kim Taylor)

Bat species found in the UK and their habitat requirements in relation to ponds.

Species ¹	Habitat preferences <i>and</i> pond habitat requirements
Soprano pipistrelle² <i>Pipistrellus pygmaeus</i>	Strongly associated with water and woodland habitats. Will forage at the edges of ponds, lakes, rivers and streams, especially around trees.
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Successful generalist. Will forage over a wide range of terrestrial and aquatic habitats, including ponds, especially around trees.
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	Particularly associated with very large water-bodies (over 100ha) including lakes, reservoirs and restored gravel pit pond complexes.
Daubenton's bat <i>Myotis daubentonii</i>	Specialises in foraging low over water, including trawling to capture prey. Prefers calm open water along rivers, or at lakes and ponds.
Natterer's bat <i>Myotis nattereri</i>	Woodland and riparian corridor specialist. Will visit ponds. Often forages in cluttered vegetation, e.g. around trees and shrubs.
Whiskered bat <i>Myotis mystacinus</i>	Associated with woodland and wet habitats. Situate ponds in or near woodland, or close to existing riparian corridors or other water bodies.
Brandt's bat <i>Myotis brandtii</i>	Associated with woodland and wet habitats. Situate ponds in or near woodland, or close to existing riparian corridors or other water bodies.
Bechstein's bat² <i>M. bechsteinii</i>	Woodland specialist. Ponds should be situated within woodland or very close to woodland edge to benefit this rare species.
Barbastelle² <i>Barbastella barbastellus</i>	Woodland specialist. Ponds within or close to woodland will benefit this rare species. Will forage in open habitats. Feeds on moths.
Brown long-eared bat² <i>Plecotus auritus</i>	Woodland specialist but will visit ponds in the wider landscape. Often forages by gleaning from vegetation, flies in clutter, even reedbeds!
Noctule² <i>Nyctalus noctula</i>	Large bat. Not very manoeuvrable when flying in clutter, so needs open approach routes. Prefers large ponds, lakes and reedbeds.
Leisler's bat <i>Nyctalus leisleri</i>	Medium-sized bat. Not very manoeuvrable in clutter. Prefers larger ponds, ponds with open approach routes or ponds in open habitat.
Serotine <i>Eptesicus serotinus</i>	Large bat. Limited manoeuvrability when flying in enclosed spaces. Requires open approach routes for access. Prefers large ponds.
Lesser horseshoe bat² <i>Rhinolophus hipposideros</i>	Forages in woodland and commutes along shaded tree-lines. Will visit ponds if there is good connectivity in the surrounding landscape.
Greater horseshoe bat² <i>Rhinolophus ferrumequinum</i>	Large yet highly manoeuvrable species. Capable of hunting for large insect prey from perches. Will visit ponds with good connectivity.

¹ Grey long-eared bat, greater mouse-eared bat, and other occasionally recorded species, were excluded due to their restricted distributions within the UK.

² BAP = UK Biodiversity Action Plan (BAP) Priority Species. It is important to note that ALL bat species are included in numerous local BAPs across the UK.

Bats will visit a wide range of pond types, including ponds of all sizes. Pond Conservation's general 'best practice recommendations' for pond creation including: clean water, wide drawdown zones, and pond complexes with varied profiles will all benefit bats. However, there are also some specific habitat features, and aspects of pond location, design and management, which can increase the value of ponds specifically for drinking and foraging bats.

CREATING PONDS FOR BATS – THE KEY FEATURES

- Locate ponds within 1 km of good landscape features for bats, such as river corridors, woodlands, tree-lines or hedgerows with mature trees.
- Retain trees around ponds to provide shade and shelter for foraging bats, and roosting opportunities.
- Create medium to large-sized ponds to benefit the widest range of bat species.
- Combine shallow water areas (to benefit invertebrates) with deeper water areas (to limit emergent vegetation growth and maintain areas of open surface water for bats) in a single pond or pond complex.
- Combine ponds sheltered and shaded by mature trees, for small woodland bat species, with ponds having open margins, favouring larger bat species.
- Consider installing bat boxes or bat houses near to ponds and pond complexes, especially in areas with limited natural roosting opportunities.

Pond Conservation is developing a new series of ‘Species Dossiers’, to provide more information about how you can create and manage ponds for specific BAP species including: stoneworts, amphibians, water voles and bats. You will be able to download these from our web-site soon.

Water Shrew (*Neomys fodiens*)

Although they are protected under section 6 of the Wildlife and Countryside Act (1981) little is really known of the secretive water shrew, which is arguably, one of Britain’s least understood mammals.

The water shrew, also known as the water ranny, otter shrew and labhallen, is the largest of the British shrews: a hefty 6-7 cm in length, and some 12-18 g in weight. It is



a particularly handsome shrew, with dense velvety, black fur on its back, a white underside, a tuft of white hairs on its ears, and a prominent ‘keel’ of stiff hairs under its tail which is used as a rudder when diving. It is also referred to as a ‘red-toothed’ shrew due to the presence of iron in the outer layer of the enamel. And you should be wary of handling these creatures because they can deliver a venomous bite – used to stun their prey – for humans the toxins in the saliva can cause soreness and a mild rash lasting a few days.

Water Shrew (*Neomys fodiens*)
Photo copyright Martin Smith

Water shrews are semi-aquatic differing from other species of shrew in that, in addition to earthworms and terrestrial insects, they also eat aquatic arthropods. Indeed this is the main way of identifying these shy creatures. Shrew droppings (scats) deposited in baited tubes are analysed for the presence of freshwater invertebrate remains. For more information on survey techniques contact the Mammal Society at www.mammal.org.uk.

Do I have water shrews in my pond?

If you are really lucky, you may catch sight of a water shrew hunting, perhaps in the drawdown zone of your pond. But it's much more likely that you'll hear them as they call out to each other during the summer breeding season. Like other British shrews, they produce a series of loud, high pitched squeaks, but they also make a distinctive lower pitched 'churr churr' sound.

If you do hear them, try making water shrew refuges out of bitumen roofing felt, laid directly on to the pond bank, and you may be lucky enough to catch sight of one hiding beneath.

Fact File About Water Shrews

- Water shrews live for no more than 14-19 months
- They occur throughout Britain, but are not found in Ireland, the Scillies or the Channel Islands
- Water shrews live in burrows, and are generally solitary. They are semi-aquatic and prefer to be close to freshwater; though on occasion they have been found up to 3 km from water. A favoured habitat is water cress beds.
- They breed throughout the summer (April –September), producing 2-3 litters of around 6 (but up to 15) young per litter in underground nests woven from dried grass. The adults then die, and it is the youngsters that carry the population forward.
- Water shrews don't hibernate, and you may be able to see them diving for their prey (sporting a distinctive silvery bubble coat), even in the depths of winter. Dives last from 3-10 seconds.
- Water shrews eat a varied diet of worms, snails and insects as well as small fish, newts and frogs, aquatic snails and insects. Their favourite prey are: freshwater shrimps, water slaters and caddis larvae.
- Their main predators are owls, but kestrels, foxes and even large fish may attack them. However, like all shrews they have scent glands that exude an oily substance distasteful to many predators, especially the domestic cat!

What can I do to help water shrews?

Water shrews are adaptable and flexible in their choice of habitat. However, populations are now thought to be declining due to habitat loss, resulting from drainage and bank reinforcement/clearing schemes which remove their vegetation cover and burrow sites. Water shrews are also extremely vulnerable to water pollution, and especially pesticides, particularly in their favoured water cress beds.

If you want to make ponds which could attract water shrews:

- Create a clean water pond, free from pesticides and other pollutants. These conditions will also encourage their favoured prey species - aquatic crustaceans, snails and caddis larvae.
- Maintain ground cover on the bank side, but manage trees and shrubs to reduce shading. Like water voles, water shrews like reed and grass/sedge tussocks.
- Encourage aquatic vegetation
- Water shrews prefer water to be at a pH of 7.0-8.0, and are intolerant of high water temperatures, low dissolved oxygen and high nitrate levels (interestingly they are less affected by phosphate or ammonia).

For more information see: 'The Water Shrew Handbook' (2006), Carter, P. & Churchfield, S. (published by The Mammal Society).

Million Ponds Project update – Markers for Success

We are just coming to the end of the second year of the Million Ponds Project, supported by The Tubney Charitable Trust, and many others. This initiative, which aims to create networks of clean water ponds for freshwater wildlife is a partnership, that includes major land owners and land managers in the UK. See our website (for further details and a list of partners):

www.pondconservation.org.uk/millionponds

Here is what, together, we have achieved so far.

- We have funded and provided advice for the creation of 573 ponds, specifically for Biodiversity Action Plan (BAP) species from the Biffaward Pond Digging Fund. Target species have included both some of our rarest Biodiversity Action plan species including: the Spangled Water Beetle, Lesser Silver Water Beetle, Mud Snail and Pillwort, as well as better known species such as Natterjack Toad, Water Vole and Bats including the Lesser Horseshoe Bat and the Noctule.
- Our partners and others have created many hundreds of clean water ponds across the England and Wales – we are just counting the totals now.
- Our Million Ponds project officers have provided on-the-ground or other support for many of these new pond creation schemes.
- We have a specific programme in place to assist the aggregates industry to create high quality, clean water ponds on their sites by providing information and resources, training courses and site visits. The aggregates element of the Million Ponds Project is funded by Natural England through Defra's Aggregates Levy



Mud Snail (*Omphiscola glabra*), a rare BAP species supported by the Million Ponds Project (Photo, copyright Paul Baker)

Sustainability Fund and is backed by the British Aggregates Association and the Mineral Products Association.

- We have run free training courses throughout England and Wales for land managers and advisors. Our courses have also been attended by a wide range of professionals from both partner organisations and others.
- We have maintained the high profile of our programme, which is ultimately aimed at improving the quality of freshwater habitats in the UK, and its aspirations with mentions in the House of Lords, as well as widespread national press and TV coverage.
- We have produced our expanding Million 'Pond Creation Toolkit' – 8 downloadable factsheets covering all aspects of the creation and management of clean water ponds for wildlife in Britain's countryside. These have been downloaded 14,000 times from our website. We will be expanding the toolkit this autumn.

www.pondconservation.org.uk/millionponds/pondcreationtoolkit

- We have created a unique, web-based mapping tool, which allows land owners and their advisors to search for pond-associated BAP species in their locality, allowing them to tailor pond creation and management towards a specific species requirements'.
- We are in the process of developing a new series of 'Species Dossiers' with information on targeting pond creation and management for specific BAP species



Two of the pools, which form part of the Dowrog pond complex in Pembrokeshire, site of our advanced Million Ponds Training Course for Wales.

This group of ponds contains several BAP plant species including: Pillwort, Yellow Centaury, Lesser Water Plantain, Three-lobed Water Crowfoot and Floating Water Plantain.

(Photos copyright Rebecca Good)

Get involved...

Keep yourself informed: get updates on the Million Ponds Project, the Pond Habitat Action Plan and other freshwater conservation issues by becoming a supporter of 'Pond Conservation'.

Contribute to the Million Ponds Project targets: tell us about the clean water ponds you've created on your land, on the project website

Help create ponds for threatened wildlife by contributing to the Pond Digging Fund: every £1 donated will generate £10 of funding through the Landfill Communities Fund for the *Pond Digging Fund*

<http://www.pondconservation.org.uk/supportus/millionpondsappeal>

If you have any enquiries about the Million Ponds Project or any other aspect of the conservation of ponds, email info@pondconservation.org.uk.

<http://www.pondconservation.org.uk/millionponds/reporting/registeryourpondform>

Have you made any clean water ponds?

We are currently collating numbers for the Million Ponds Project. So if you have made new clean water ponds during 2009/2010 – please tell us. The sites will also contribute towards the national Biodiversity Action Plan for Priority Ponds. You can register ponds using a very simple form on Pond Conservation's Website at:

<http://www.pondconservation.org.uk/millionponds/reporting/registeryourpondform>