

Good wildlife ponds

Introduction

Different types of ponds support different kinds of wildlife - so the best way to encourage a wide variety of pond plants and animals is to maintain a range of different pond types in the area. This could include ponds that are seasonal, permanent, shady, open, overgrown and so on. Individual ponds are often richest where they contain a wide variety of different habitat types (see over page), including abundant vegetation in the water and on the bankside. But, overall, it is better to maintain a range of different pond types than to try and cram every habitat into a single pond.

Whatever type of pond you have, however, water quality is critical. Unpolluted ponds not only have the best wildlife communities, but have far fewer management problems. So where ponds are polluted it can be worth trying to improve their water quality - although this is not always easy! (see water supply).

Different types of pond

Five useful types of ponds to have in any area are described below.

Seasonal or temporary pond. Because temporary ponds dry out in most summers they are often overlooked, or assumed to be 'lost'. In fact they support a vital range of specialised pond species and it is important that they are retained, and not deepened. A surprisingly high number of temporary ponds support very rare species, particularly where they occur in semi-natural landscapes such as ancient woodland, old meadows or heathlands.

Shaded ponds. Trees are often thought of as undesirable around ponds but, in fact they provide many types of habitat for pond animals (see over page). The best advice is never to clear fell all the trees around a pond and to make sure that, if there are only a few examples of shaded ponds in any area, that some are kept undisturbed.



PCT: P&R Ltd

Shaded woodland ponds are host to some of our most rare invertebrate species

Overgrown ponds As they age and fill in with sediment and marginal vegetation, ponds become shallower and more overgrown. This is a natural process that has been repeated constantly throughout geological history and does not inevitably lead to the pond becoming a poorer wildlife habitat. In fact it is usually the time when wetland plants are at their richest, and many associated pond animals thrive living amongst the shallow water and dense vegetation.

Classic ponds. These are the sorts of ponds pictured on the top of chocolate boxes. They hold water all year round, often have a fringe of rushes and a smattering of water-lilies. As long as they have unpolluted water they can be very rich in wildlife - but they are only one type of pond, and can only support some of the wide range of plants and animals found in different pond types nationally.

Water supply

The best wildlife ponds are usually unpolluted. Knowing where the water comes from can help to control or eliminate pollution.

Apart from rainwater, there are three main sources of water for ponds. Individual ponds may be fed by one or more of these water types and the importance of each can vary during the year.

(i) Surface run-off is water that runs into the pond from higher ground. It flows either through the vegetation or, more often, through the soil and subsurface. It can be amongst the best or worst water supply depending on how polluted the catchment of the pond is. Water running off from unfertilised grassland or woodland is likely to be unpolluted but water draining from an intensive arable field or car park will, for example, usually be highly contaminated.

(ii) Groundwater is water that is already present in the ground - usually in sands and gravels. In urban and intensive arable areas it is usually the cleanest water source because it has been pre-filtered through the sub-surface.

(iii) Streams and ditches seem like attractive water sources but can be problematic in the long term. In the lowlands, in particular, inflows are commonly polluted. Streams also bring in large amounts of silt so that the Pond fills in much more quickly - often with polluted sediment.



PCT: P&R Ltd

1 in 4 seasonal ponds in semi-natural habitats support Red Data Book species

Semi-permanent ponds: Semi-permanent ponds dry out occasionally in drought years. They are usually very rich ecosystems, particularly for amphibians and invertebrates such as water beetles. This is because the occasional drought gets rid of fish which are a major predator and this allows other species to thrive.

Good wildlife habitats in ponds

What makes a good pond habitat?

Most pond animals, such as dragonflies, water beetles, mayflies, snails and other pond creatures, are tiny animals - often much less than length of a thumb-nail. Their first need in a pond is for suitable living-quarters where they can feel protected. Any structure under the water which provides this protection will be useful - and the more complex it is the better.

Open water is usually the most dangerous habitat in a pond and these areas usually have few species. Plants provide much better cover - but some are better than others. Tall reeds may look lush above water but their underwater structure is often quite simple, with lots of open water areas around the stems. This means that they can be useful for aquatic animals, but are not usually the richest areas. Far better are areas around the pond edge which have low wetland herbs and grasses growing out from the bank. Other structures can serve a similar purpose, including the underwater root mats that grow out from willows and even the spaces between coarse leaf-litter or gravel at the bottom of a pond.

Some of the most valuable habitats in ponds for both plants and animals are described below - not all are immediately obvious!

Bare mud at the pond edge

Pond water levels fall naturally between winter and summer creating a "drawdown zone" which is valuable for many animal species and a natural germination area for many wetland plants. If the pond is grazed by livestock or trampled by people, falling water levels will often expose a bare muddy or stony drawdown zone. The mixtures of bare ground and occasional plants here provide an important habitat for a wide range of invertebrates. Some pond animals use the drawdown zone during the wet phase; others when it is damp or dry; and some synchronise their life cycle with the seasonal change in water levels. Dragonflies like the Southern Hawker (*Aeshna cyanea*) and the Brilliant Emerald (*Somatochlora metallica*), for example, often lay their eggs in the damp exposed mud of the drawdown zone - perhaps to avoid fish predation in the period before their eggs hatch. The damp and dry pond edge is also used by many semi-terrestrial animals including snails, spiders, fast-running ground beetles and shore bugs. It is also a favoured feeding ground for many wading birds, and even small mammals like shrews use it, catching insects trapped in the mud.

Trees and wood

Trees growing in, over and around ponds can create a variety of pond habitats. Rotting logs in the water are a favoured egg-laying site for hawker dragonflies, fallen branches are used as bird-nesting sites, and dead leaves on the pond bottom provide both a food source for shrimps and slaters and case material for caddis flies. Trees on the bank create a winter hibernating site for newts amongst their roots. Trees growing in the water are also useful - especially willows, which send out underwater root bundles creating a habitat for mayflies and beetles. Many wetland

plants can survive under moderate shade, but highly invasive plants like bulrush do not grow so densely. Partial shade can, therefore, be used to help maintain a more diverse plant community.

Very shallow water

You can tell an experienced pond surveyor by where they first search in a pond for wildlife. The widest range of pond animals are found in exceptionally shallow water only a few centimetres deep (less than the height of a match-box!), at the very edge of the pond. Try to ensure that whatever the season, some part of the pond always has extensive shallow edge areas of about this depth - preferably with a broad band of grasses or herbs in the water to provide shelter.

Wetland plants. Wetland plants are a very important part of any pond; many pond plants are declining nationally so protecting them for their own sake is worthwhile. They also provide a vital habitat for many different kinds of pond animals. For example, every part of a Bulrush (*Typha latifolia*) is used by animals, from the tiny Bulrush Bug (*Chilacis typhae*) living in the flower heads, to water voles that eat the succulent growing tips and the Ruddy Darter dragonfly larvae (*Sympetrum sanguineum*) which live in sediment around its roots.

Amongst the most useful plants are low-growing herbs and grasses. Marginal grasses, such as Creeping Bent (*Agrostis stolonifera*), and the floating Sweet-grasses (*Glyceria* species) are commonly regarded as weeds and pulled out when they begin to spread into the water. In fact, grasses growing in just a few centimetres of water are excellent habitats for water beetles, whilst in deeper water, floating sweet-grasses are amongst the most favoured habitats and egg-laying sites for Smooth newts (*Triturus vulgaris*) and Great Crested Newts (*Triturus cristatus*).

Submerged and floating-leaved plants are also valuable - particularly for providing a habitat in deep areas of the pond that would otherwise be barren open water.

The surrounding land.

For many animals the land around the pond is a critical part of their life cycle - dragonflies need tall plants to help them shelter from the wind as they dry their wings for the first time, water beetles pupate in the pond banks and many pond insects feed on the nectar of flowers once they have emerged as adults.

The best surroundings for ponds are usually natural habitats like woodland, unimproved grassland, scrub, heathland or moorland. If pesticides or fertilisers are used in the surroundings of the pond, try to create a buffer of scrub and rough grassland to protect the pond and provide a habitat.



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The ever-changing drawdown zone is one of the most important parts of any pond.

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