



ponds



what are they?

Ponds are shallow, water-filled depressions colonised by aquatic plants and animals. Natural ponds, created by receding flood waters or forming in the depression left by the roots of fallen trees, may occasionally still be seen in the countryside. These days though, these are incredibly rare, as the natural processes that form them are much more managed.

For centuries, ponds on farm or common land were a water source for livestock. However, intensification of agriculture and modernised farming methods (like using pipes to transport water to animal troughs), as well as changes in land use, increased urbanisation and construction have led to a large number of ponds being lost since Victorian times, with serious consequences for the species that depend on them.

Monasteries traditionally had fish ponds, and most large country estates had a water feature, but smaller garden ponds only became popular in the second half of the 20th century. Modern materials like concrete or rubber pond liners also made them easier and cheaper to install and maintain.

Today, the number of ponds is on the increase again. However, it's estimated that some 90% are polluted to some degree, mainly by nutrients and sediment run-off in urban areas or near roads. This is a bad news for aquatic plants and wildlife that evolved to live with lower levels of nutrients, since the high levels of nitrates and phosphates found in gardening products can alter the delicate balance of the water.

what are the benefits?

For their relatively small size, garden ponds provide a large benefit to local wildlife. They are great for biodiversity, and creating more of them increases the available habitat for a number of species that have declined in recent years due to habitat loss or imported diseases such as Ranavirus (which affects amphibians).

Animals like frogs, toads and newts all use ponds for breeding, and when several ponds exist close to each other they form an important network that helps link fragmented wildlife communities.

Frogs, toads and newts eat pests in your garden - newts particularly like baby slugs. They are a form of natural pest control.

Ponds are also good for people, as is any contact with nature. People are naturally drawn to water and a pond is a pleasant place to spend time, relax and watch the wildlife. They're also great for teaching children about nature through dipping and learning to identify plants and animals.



Ponds are a magnet for wildlife and can add beauty to your garden.

what can I do?

Dig your pond - with gently sloping sides so wildlife can get in and out. Unless you're keeping fish, the deepest areas should be no more than 25-30 cm to keep water oxygenated and well lit. Deeper ponds should have a surface area of approximately 5-10 times the maximum depth.

Puddled clay is the traditional way of lining ponds - working clay repeatedly by trampling it until the air has been squeezed out and it forms a dense, watertight layer. Clay is only suitable for stable land as movement will cause it to crack and lose water. For the same reason, clay-lined ponds must be dug well away from tree roots, and they need to be kept topped up so the edges don't dry out and crack.

Puddling clay can cost anywhere between £40 a tonne plus transport, to £5 a tonne if buying in bulk, and can be purchased online.

Clay is environmentally-friendly and cheap as long as you don't have to transport it too far. Puddling is hard work and will take longer than installing a synthetic liner.

Synthetic liners run from as little as £1 per m² depending on the material and thickness. They're made from modern materials like synthetic rubber or plastic. While these create pollution in their manufacture, a good quality liner can last up to 25 years so the impact is spread out over the life of the pond. It's important to remove stones from the hole first to prevent the liner from ripping. You can provide extra protection by putting a layer of old carpet or underlay down first.

Ponds must be filled with clean water such as rainwater. Tap water may contain nutrients that discourage aquatic plants and animals while encouraging algal bloom. Rainwater will probably fill your pond naturally, and you can set up a rainwater butt to collect enough water to fill your pond and keep it topped up.

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Pond being constructed with puddled clay.

You can wait for plants to establish themselves - species that come under their own steam will be more appropriate. You also avoid the transfer of invasive plant species. As the pond matures, it is colonised by plants and gradually silts up, at which point early-stage species move on or their natural predators increase, changing the balance.

Planting speeds up the process - choose plants that provide habitats for wildlife - low grasses and marginal wetland species, plus plants with submerged and floating stems and leaves to give the widest range of habitat types. You can buy plants or go out and pick them. If picking, make sure you are either on common land or have permission from the landowner. Never pick from a nature reserve as you may damage protected species. Plants must be native to the local area, not invasive non-native species - use a plant identification guide or seek advice from your local Wildlife Trust. Don't be tempted to transfer plants from someone else's garden pond as this carries a greater risk of introducing non-native species.

There's no need to stock your pond with animals - local wildlife will quickly detect the new water body and some species will appear in just a few days. There's no need to add sludge from another pond to 'get it started' as again this carries the risk of introducing something undesirable.

NB: frogs and toads hibernate in winter, so you need to make sure that your garden has some crevices, rocks, holes or a log pile for them to hide in, or that your pond has enough mud at the bottom for them to bury themselves in.

Fish are a natural part of pond life in the wild but prey on other species and so have a

disproportionately large impact in a small pond. If you want fish and other wildlife, then two ponds may be the best option if you have the space. Failing that, make sure your pond has some shallow, densely covered areas with bordering grasses that fish can't get to and which provide a safe haven for other species.

Ponds can generally be left to do their thing but require some seasonal maintenance. Thinning out plants and removing unwanted species helps to keep anything from dominating. In winter and autumn, remove fallen leaves. Some twigs and leaves provide a source of food, but too much can increase nutrient levels and de-oxygenate the water. It's good to have some overhanging, shady trees to prevent the pond from drying up in hot months (although creatures will recolonize when the water returns). However, completely overshadowing the pond will block too much light. For country ponds, the most natural kind of management is gentle disturbance at the water's edge, such as caused by animals coming to drink. Ban pesticides, herbicides and synthetic fertilisers from your garden - pond life won't like the runoff, as it will increase nutrients and toxins.

resources

- see lowimpact.org/ponds for more info, courses, links & books, including:
- Dave Bevan, *Creating a Garden Wildlife Pond*
- Reid & Zim, *Pond Life*
- Derek Lambert, *Pond Plants*
- froglife.org - conserving amphibians
- freshwaterhabitats.org.uk - protecting freshwater habitats
- friendsofwarnhamlnr.org.uk/pondlife.html - pond life with photos



Pond dipping is a great way to get kids interested in nature.

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