

A Garden Pond

As our climate changes, gardens are becoming even more vital to wildlife and people. They can provide shade, absorb carbon, soak up flood water and help to cool buildings. A well managed network of gardens stretching across Sussex would also help wildlife to move more freely and adapt to climate change enabling us to create a living landscape.

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Skill level: 

Ideal Time of Year: September - November



Wildlife Friendly: A pond can attract a greater variety of wildlife than any other single feature in the garden. It provides a breeding space for frogs, toads, and dragonflies, as well as a habitat for a host of other creatures, from water snails to pond skaters. A pond which is shallow at one end will provide a bathing area for birds, and a watering hole for hedgehogs.

Climate Friendly: A series of ponds in a neighbourhood creates essential corridors for wildlife to move and adapt to climate change. Ponds also store a large amount of carbon, helping to reduce the impact of climate change.

Planning your pond

Where to put your pond

Position the pond in a sunny place, unshaded by trees, nor overlooked by deciduous trees that will fill the pond with leaves in autumn. Decaying leaves in a pond use up oxygen and can cause the pond to become stagnant.

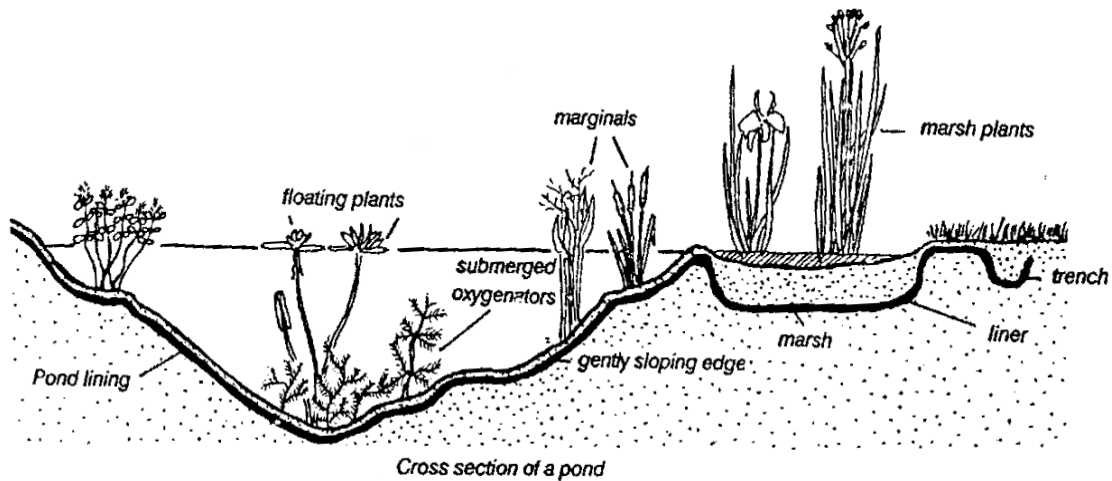
It is a good idea to provide some shelter (e.g. bushes, a pile of logs) nearby, to which birds, amphibians or hedgehogs can retreat if necessary (though bushes could also be a hiding place for the neighbourhood cats!)

A pond which is ideal for wildlife will have:

- ◆ Minimum area of 4 to 5 square metres
- ◆ Minimum depth of 60 centimetres so that part of the pond can offer hibernating habitat for amphibians
- ◆ Shallow sloping area, to allow birds and other animals easy access
- ◆ Range of depths, to provide appropriate positions for different plants
- ◆ Marsh or bog area;

If you do not have the space, then a smaller area or small containers may still be useful to wildlife. For example, old sinks or half barrels may still provide a home for aquatic insects, and breeding areas for dragonflies, this is the same for formal ponds. Shallow container such as up turned dustbin lids can also act as a birdbath.

Pond profile



Ponds with natural, undulating shapes have longer edges and greater value for wildlife.

Pond linings

There are several materials which can be used to line a pond, such as clay, concrete and pre-formed linings. The latter are likely to have sides that are too steep for wildlife, and which prevent the build-up of silt.

The best solution is probably a flexible lining. The options are polythene, PVC, or butyl rubber. Polythene is the cheapest. Butyl rubber is the most expensive, but it is the most durable.

Digging a pond

1. Mark out your chosen shape with string, a hose pipe or line of sand.
2. Dig out the shape to a depth of about 60-100cm. Start at the edge and work in. Save any turf to lay along the edge of the pond later.
3. Create sloping sides that support a range of plants and allow animals to get in and out easily.
4. Create varied shallow margins from 1-25cm to suit different marginal plants. This area will be warmer and encourage frogs and toads to spawn. It will also be a stable edge for mammals to drink from.
5. Vary the profile. You can create soil shelves as you dig or build ledges from rocks or stones after you have laid your liner.
6. Add a shallower boggy area near the pond edge for species to migrate into.
7. Remove roots, stones and rubble from the hole and firm the soil down.
8. Cover the hole with a 3cm layer of builder's sand followed by an under liner, such as a polyester sheet or old carpet.

Adding a butyl liner

1. Start at one edge and unroll the liner across your pond.
2. Make sure the liner overlaps the edges of the pond and secure it with rocks or bricks.
3. You could now add another under liner on top of the butyl for extra protection.
4. Fill the pond with water, ideally rain water collected in a water butt. The water will press the liners into shape.
5. Allow about 30cm of liner to overlap the edge of the pond. Cut any excess liner and tuck the edges under varied materials, such as stones, a pebble beach, large flat rocks, turf, logs or paving slabs.



Stocking your pond

Native plants for ponds

Plant type	Scientific name	Common name
Oxygenators: which are usually submerged plants.	<i>Ceratophyllum demersum</i> <i>Myriophyllum spicatum</i> <i>Ranunculus aquatilis</i> <i>Callitriche stagnalis</i> <i>Hottonia palustris</i> <i>Potamogeton crispus</i>	hornwort spiked water-millfoil water crowfoot water starwort water violet curled pondweed
Floating plants: The leaves of these plants float on the surface. Some of the plants may be rooted, but others float freely. The floating leaves provide shade for the water below, thus reducing build-up of algae. They also act as platforms for viewing, courting or mating for a variety of insects.	<i>Polygonum amphibium</i> <i>Hydrocharis morsus-ranae</i> <i>Potamogeton natans</i> <i>Nymphoides peltata</i> <i>Ranunculus aquatilis</i> <i>Stratoites aloides</i>	amphibious bistort frogbit broad-leaved pondweed (not in small ponds) fringed water lily water crowfoot water soldier
Emergent plants: have erect stems and leaves, which emerge above the water's surface. These are important for dragonfly nymphs to crawl up before they become adult flying insects.	<i>Menyanthes trifoliata</i> <i>Sparganium erectum</i> <i>Ranunculus lingua</i> <i>Butomus umbellatus</i> <i>Iris pseudacorus</i>	bogbean, branched bur-reed greater spearwort flowering rush yellow flag
Marginal plants: need to grow at the shallow edges of the pond. Some need to be permanently in a few centimetres of water, while others will tolerate periodic drying out.	<i>Sagittaria sagittifolia</i> <i>Veronica beccabunga</i> <i>Ranunculus flammula</i> <i>Caltha palustris</i> <i>Myositis scorpioides</i> <i>Mentha aquatica</i> <i>Alisma plantago-aquatica</i> <i>Veronica anagallis-aquatica</i>	arrowhead brooklime lesser spearwort marsh marigold water-forget-me-not water mint water plantain water speedwell
Marsh or bog plants: are wetland plants that grow near the water's edge. Their requirements vary from those that must be in permanently wet soil, to those which need moisture retentive soil, but do not tolerate being waterlogged.	<i>Lysimachia nummularia</i> <i>Cardamine pratensis</i> <i>Lycopus europaeus</i> <i>Epilobium hirsutum</i> <i>Eupatorium cannabinum</i> <i>Stachys palustris</i> <i>Filipendula ulmaria</i> <i>Lythrum salicaria</i> <i>Lychnis flos-cuculi</i> <i>Junus</i> spp and <i>Carex</i> spp	creeping jenny cuckooflower gipsywort great hairy willow-herb hemp agrimony marsh woundwort meadowsweet purple loosestrife ragged robin rushes and sedges

Non natives

For some time now, a large range of exotic plants and animals have been available to the public in aquatic stockists. The majority of these species are not able to live in the UK outside of gardens or highly sheltered environments. However, some species escape or are deliberately released from cultivation, and have become pests in the wider environment. With no natural predators and a benign climate they can out-compete our native plant and animal species.

Invasive non-native plant species occupy the habitats of native plants, block up waterways and rapidly reach nuisance proportions, requiring expensive remediation works.

Plant species to avoid include

Parrot's feather ▲ Floating pennywort ▲ Australian swamp ▲ Stonecrop (also known as New Zealand Pigmyweed) ▲ Water fern ▲ Curly waterweed ▲ Water primrose ▲ Water hyacinth ▲ Water lettuce

Maintaining & looking after pond wildlife

Once established, a pond should need relatively little attention.

A few simple steps to follow

- ◆ Don't introduce frogs or other amphibians from other ponds because this can spread amphibian disease.
- ◆ Don't add fish because they will eat smaller animals such as mayfly larvae.
- ◆ Keep the grass long around the edge of your pond to provide places for animals to shelter.
- ◆ To prevent your pond from freezing over float a tennis ball on the surface.
- ◆ Provide long grass, and piles of stones or logs nearby for pond animals to shelter in winter.



Practical maintenance of a wildlife pond

Build up of dead organic matter such as fallen leaves and dead vegetation at the bottom of the pond. The water turns brown as all available oxygen is used up by the decay process. Some dead organic matter is useful as a substrate for other plants. Eventually, a layer of silt accumulates which makes the pond shallower, this silt layer can be a useful feature - for overwintering minibeasts and hibernating frogs. You should not de-silt more than once every 5 years, unless you have a pollution problem. The best time is in autumn before wildlife and minibeasts go into hibernation and after plants have finished flowering. Leave dredging on the edge of the pond for a few days so that minibeasts can escape back into the pond. Don't forget, be really careful not to pierce your liner.

Encroaching vegetation

After a while, some pond plants may be growing too abundantly; these can be pulled out or divided once every year or once every two years, reducing their presence by about one fifth to one third/one half. Once again, this should be done in the autumn before minibeasts go into hibernation. Some plants can be grown in pots, which limits their spreading. Aim to make sure that at least 10%, but less than 30% of the pond surface is open for 60% of the plants present. Once again leave vegetation on the banks of the pond for a few days so that minibeasts can escape back to the pond.

Winter and summer

It is important that the pond does not become completely frozen solid in the winter. Ponds deeper than approximately 60cm do not usually become frozen right to the very bottom and should be safe. However, it is still necessary to provide some open water so that oxygen can diffuse into the pond. An easy way is to float a ball on the pond that can be removed, leaving a hole in the ice. Or rest a hot pan on the surface (remove before the ice melts completely!) Using hammers and pouring on boiling water is not recommended, as this sets up shock waves or boils wildlife.

In summer the pond may need to be topped up in hot weather. Rainwater is preferable if you have a water butt. It is better to refill little and often rather than in one go. If you have an adjacent bog area, this may also need to be watered in summer. The reason for not recommend filling ponds with tap water is not only related to the issue of sustainability of water resources but also takes into consideration the highly levels of chemicals in tap water .i.e chlorine, nitrogen & phosphate which can all unbalance the chemistry of the pond.

Caring for creatures

Make sure there are sufficient areas of habitat such as logs, stones and rough vegetation at the pond edge, especially during winter when these will be used as hibernation sites by frogs, newts and others.