Wildlife Pond Pack

Designing, building and maintaining a garden wildlife pond

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Welcome to the wonderful watery world of the wildlife pond. This fact sheet will tell you how to enjoy your very own pond for wildlife in the garden, how to maintain it, and about the birds, animals and other pond creatures that may come to visit.

Smooth newt and water snail

Ponds in the wild

Ponds in the wild may be one of several different types. Brackish ponds form in coastal regions where they receive regular influxes of salt water. Temporary ponds form in winter and dry out completely in the summer each year. Freshwater ponds form inland, fed by a combination of ground water, rainwater or surface water. Each type of pond has very different conditions and supports different kinds of wildlife.

All ponds are temporary and over time will develop into marsh, bog, and eventually wet woodland. This occurs by natural processes of siltation, the growing up of pondside vegitation and consequent drying out of surrounding habitat.

Since 1950, over half of the UK's ponds have been lost, due to large-scale drainage schemes, chemical pollution and neglect through disuse, along with all the wildlife that depended on them. Great Crested Newts have declined by 50% since 1966. Since 1970, 10% of breeding dragonfly species have become extinct.

Ponds in the garden

Of the different pond types, garden ponds are most similar to freshwater ponds and they can provide a refuge and home for many freshwater dwellings creatures. A wildlife pond is one of the single best features for attracting new wildlife to the garden and it is thought that some amphibians, such as frogs, are now more common in garden ponds than in the countryside. Many pond creatures will travel far and wide to find new ponds, discovering a potential new home in no time at all. So a well designed wildlife pond can play a big part in helping to preserve our natural biodiversity, as well as being an attractive garden feature.

Designing your wildlife pond

The siting, depth profile and pond surrounds are of great importance if the pond is to be successful at attracting a range of wildlife.

Siting the pond

Where? An ideal place for a pond is on level ground, in an open, sunny area, the sunnier the better, and well away from any trees. To achieve a range of conditions, it may be beneficial to choose a spot that receives a little shade at some point during the day. A location that is already damp or waterlogged is not really suitable, being at risk of constant flooding. An area that is too shady will inhibit the growth of essential oxygenating and other plants.

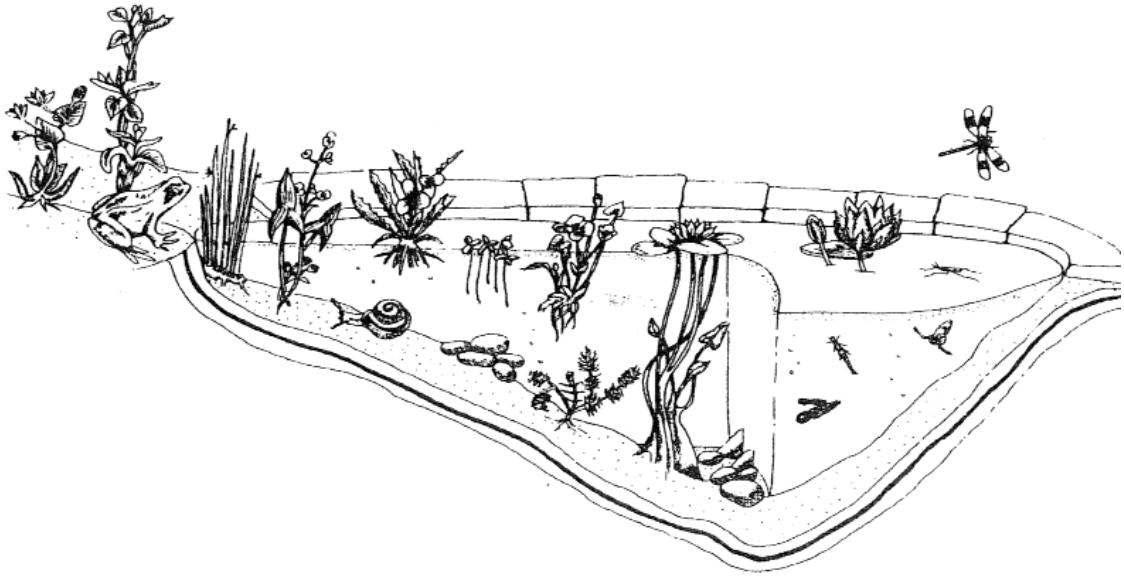
Pond profile

Depth. This is very important. To be attractive to wildlife, a pond should have sides with gentle slopes, not steep ones. If the pond is quite small, shallow sloping edges should be on one side at least. Extensive shallow areas 30cm wide and 4-20cm deep; especially to the south and west. A deeper zone at a minimum 60cm depth and ideally 100cm or more.

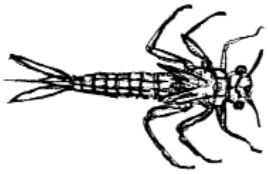
Around the pond edges

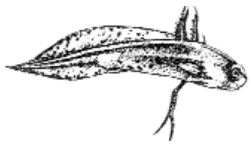
Providing extra habitats around the edge of the pond will be of great benefit to wildlife. These can be created by: Placing stones, logs and tall plants in spots all around the pond edges. Allowing some long grass of other vegetation to grow up on at least one side of the pond. Building scalloped pond edges rather than a straight ones - these will provide many different micro-conditions with variations in shade and depth and temperature. Best of all, creating an accompanying unsubmerged bog area to the north-north east side of you pond. (Details are given below)

For ease of maintenance and pond-watching, it is sometimes best to have one relatively formal edge to your pond, with a straighter edge and incorporating paving, gravel path or short turf. The size of the pond is less important than including the features outlined above into the design. Although larger ponds will generally support more wildlife a small garden pond will still be an effective home for many creatures.



Damselfly nymph ***Freshwater shrimp*** ***Ramshorn snail*** ***Water boatman***





Building the pond

1. *Choosing a pond liner.* There are many different sorts of pond liner - plastic, fibre glass, clay and concrete, each with their own advantages and disadvantages. Overall, we would recommend liner made butyl rubber, which is durable, flexible, moderately cheap and easy to work with. The size of butyl liner you will need for your pond can by calculated as:

Width + (2 x max depth) x **Length** + (2 x max depth)

2. ***Mark out*** your pond on the ground with a rope or hosepipe first.

3. ***Get digging!*** Dig the hole, ensuring the sides are level with a spirit level on a plank spanning the pond. Dig an extra 25cm depth to accommodate the liner 'under-cushion' (see below) and height of the flagstones at the pond edge. Finally, dig a trench around the perimeter of the pond for the over-hanging pond liner to drop into. If you are building an accompanying bog area, also dig out a saucer shaped depression 60cm deep on the appropriate side of the pond.

4. ***Lining the pond.*** Remove any sharp stones or other objects from the bottom of the hole and first put down a 5cm+ layer of sand , old carpet or newspapers (or try loft insulation material!) as an 'under cushion' for the liner proper. Unroll the butyl liner over the top with the over hanging edges falling into the trench. Any extra excess liner can be snipped off with scissors.

You will need to add a substrate for plants and animals. Sand is excellent because it is sterile and will not harbour any undesirable seeds or microbes. Spread a thin layer over the bottom of the pond.

A boggy area can be lined with liner off-cuts, over-hang liner, old plastic sacks or bags, or all of these, basically anything that will help impede drainage. If using over-hanging liner, punch some holes 20cm apart in the bottom of the bog (not the pond!), then cover over with crocks and fill in the bog area with soil. To make watering the bog easier in the future, you can bury a length of perforated hose into the soil so that this may be connected up to an external water supply via a hose.

5. **Filling with water.** If possible, use collected rainwater to fill your pond; for most people however, filling from the tap with a hose is usually the most practical method. To stop the sand sub-strate dispersing, rest the nozzle on a plastic bag to absorb some of the energy. Filling may take much longer than you think so now is the time to put the kettle on for a well deserved cup of tea.

Back fill the trench with soil; as the pond fills up, the liner will stretch. As the pond is filling, place turf, soil or flagstones over the exposed liner at the pond edges. Butyl liner degrades in sunlight so try not to leave areas of uncovered liner exposed for to long.

6. ***Waiting …*** If you used tap water to fill your pond, in the early stages the water may turn a vivid green colour. Do not worry - this is because tap water is full of nutrients. The colour will fade gradually as nutrients are used up and microscopic plant-eating animals start to colonise the pond. For this reason it is best to wait a week or two before planting any pond plants. In the meantime, place stones and logs around the edges to create some habitats for all those future pond visiting creatures.

Choosing pond plants

Pond plants will oxygenate the water and keep it clear. Unfortunately many non-native aquatic plants readily obtainable from garden centres are invasive and will soon dominate the pond completely to the detriment of everything else. Carefully selected native species should remain in a relatively balanced state and will support more wildlife. Plants can be introduced to your pond approx. 1-2 weeks after the initial filling with water, when tap water nutrients such as chlorine and fluoride have evaporated. The best time to plant is in spring or summer when plants are actively growing. Plants can be planted into soil held in old string onion bags or baskets.

Four zones for plants

There are four 'zones' in which pond plants may be grown; try to have plants in each zone. The four zones are:

1. Totally submerged (in deeper water) - oxygenating plants
2. Submerged but with floating leaves (also in deep water) - oxygenating plants
3. Emergent (in shallower area) and
4. Marginal (growing in the pond edge and bog areas.)

A useful rule of thumb is to provide one oxygenating plant per 100cm2 of open water.

The taller, marginal/emergent zone plants are better on the northern edge where they won't cast shade over the rest of the pond. In the wild, the four zones are not really distinct at all but merge into each other. Some marginal and emergent plants therefore are interchangeable.

Plants suitable for each zone, and plants to avoid, are listed below:

Marsh marigold

Hemp agrimony

Pond plant lists

Recommended Plants:

Submerged oxygenators
Spike Water Milfoil Myriophyllum spicatum
Hornwort Ceratophyllym demersum (pollution intolerant)
Shining Pondweed Potamogeton lucens
Horned Pondweed Zannichellia palustris
Fennel Pondweed Potamogeton pectinatus (pollution tolerant)
Water Starwort Callitriche stagnalis (pollution intolerant)

Floating-leaved
Water Crowfoot/Buttercup Ranunculus aquatilis (pollution intolerant)
Bladderwort Urticularia spp
Frogbit Hydrocharis morsus-ranae
Broad-leaved Pondweed Potamoeton natans (pollution tolerant)
Curled Pondweed Potamogeton crispus (pollution tolerant)

Emergent
Branched Bur-reed Sparganium erectum (tall; can be invasive, but a good alternative to Typha)
Amphibious Bistort Persicaria amphibium
Arrowhead Sagittaria aquatilis
Water Crowfoot Ranunculus aquatilis
Water mint Mentha aquatica (can be invasive: also strong scent deters some insects)
Flowering Rush Butomus umbellatus
Water Plantain Alisma plantago-quuatica (tall)
Water Forget-me-not Myosotis Scorpiodes
Stinking Iris Iris foetidissima (tallish)
Marsh Cinquefoil Potentilla palustris
Swamped grasses - good for pond invertebrates
Yellow flag Iris Pseudacorus (can be a little invasive)

Marginals
Flowering Rush Butomus umbellatus
Lady's Smock Cardamine pratensis
Marsh marigold Caltha palustris
Purple Loosestrife Lythrum salicaria (tall; a wonderful bee plant)
Gipsywort Lycopus europaeus
Sedges large and small
Meadowsweet Filipendula ulmaria (tallish; good for birds in autumn)
Brooklime Veronica beccabunga
Ragged Robin Lychnis flos-cuculi
Soft Rush Juncus effusus
Water Forget-me-not Myosotis scorpioides
Bungle Ajuga reptans
Water Avens Geium rivale (spreading)
Marsh Woundwort Stachys palustris (tall)
Great Willowherb Epilobium hirsutum (tall)
Hemp Agrimony Eupatorium cannabinum (tall)
Fleabane Pulicaria dysenterica
Rough grassland with Creeping Bent Agrostis stolonifera, Marsh foxtail Alopecurus geniculatus.
Fool's watercress Apium nodiflorum
Common Spike-rush Eleocharis palustris
Water pepper Persicaria hydropiper
Silverweed Potentilla anserina
Creeping Jenny Lysimachia nummularia (low growing ground cover)
Water Dock Rumex hydrolapathum (may be invasive)

Flowering rush