Wildlife at Work

Wildlife Ponds

Wildlife Ponds

Welcome to the wonderful watery world of the wildlife pond. This fact sheet shows you how to create and maintain your very own pond and about the birds, animals and other pond creatures that may come to visit.

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 and Business

A wildlife pond is one of the single best features for attracting new wildlife to your grounds, they can provide a refuge, home and valuable water source for a multitude of creatures. It is thought that some amphibians, such as frogs, are now more common in urban 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 feature enjoyed by employees and wildlife alike.

Designing the Wildlife Pond

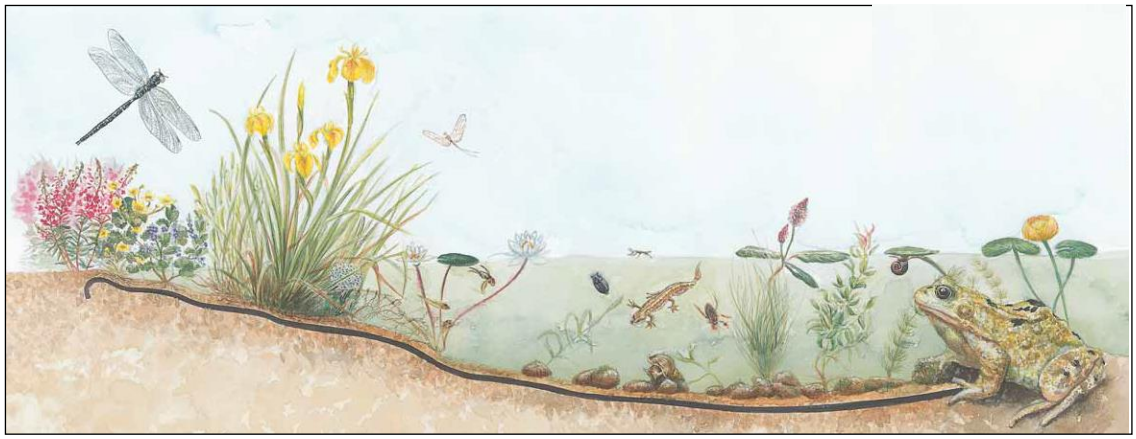
The siting, depth, profile and pond surrounds are of great importance if the pond is to be successful in attracting a range of wildlife.

- **Siting the Pond:** The 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:** To be attractive to wildlife, a pond should have: sides with gentle slopes, not steep ones; extensive shallow areas 30cm wide and 4 – 20cm deep, especially to the south and west. A deeper zone of 60-100cm is also important.
- **Pond Edges:** Providing extra habitats around the edge of the pond will be of great benefit to wildlife e.g. by placing stones, logs and tall plants around the pond edges. Allow some long grass or other vegetation to grow up on at least one side of the pond. Build scalloped pond edges rather than straight ones. This will provide many different micro-conditions with variations in shade, depth and temperature. Ideally, create an accompanying unsubmerged bog area to the north-north east side of your pond. (Details are given below)

Wildlife at Work

Wildlife Ponds

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 pond will still be an effective home for many creatures.



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 out of 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 maximum depth)
- LENGTH + (2 x maximum 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 overhanging 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.

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.

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,

Wildlife Ponds

so try not to leave areas of uncovered liner exposed for too 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 into your new pond. 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 will ensure the pond remains in a relatively balanced state and will support more wildlife. The best time to plant is in spring or summer when plants are actively growing. Plants can be planted into soil held in baskets or hessian bags.

Suitable Pond Plants

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

- Totally submerged, in deeper water – oxygenating plants.
- Submerged but with floating leaves also in deep water.
- Emergent, in shallower areas.
- Marginal, growing in the pond edge and bog areas

Plants suitable for each zone are listed below:

Submerged Oxygenators		
Spike water milfoil	Hornwort	Shining pondweed
Horned pondweed	Curled pondweed	Water starwort

Floating-Leaved Plants		
Water Crowfoot	Broad-leaved Pondweed	Frogbit

Emergent Plants		
Amphibious bistort	Arrowhead	Water mint
Flowering rush	Water plantain	Water forget-me-not
Yellow flag Iris	Marsh cinquefoil	

Wildlife at Work

Wildlife Ponds

Marginal Plants		
Lady's smock	Flowering rush	Marsh marigold
Purple loosestrife	Gipsywort	Meadowsweet
Brooklime	Ragged robin	Water forget-me-not
Bugle	Water avens	Marsh woundwort
Hemp agrimony	Fool's watercress	Common spike-rush

Plants to Avoid at all Costs		
Australian swamp stonecrop/New Zealand pygmyweed (*Crassula helmsii*)	Water fern/ fairy fern (*Azolla filiculoides*)	Parrot's feather/Brazilian water milfoil (*Myriophyllum aquaticum*)
Floating pennywort (*Hydrocotyle ranunculoides*)	Himalayan balsam (*Impatiens glandulifera*)	Canadian pondweed (*Elodea canadensis)*
Curly waterweed (*Lagarosiphon major* or *Elodea crispus*)	Nuttall's waterweed (*Elodea nutalli*)	

Top Tips for Planting:
Plant taller, marginal/emergent zone plants on the northern edge where they won't cast shade over the rest of the pond.

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

Important: a wildlife pond should NOT have any fish, nor pumps, filters or fountains. Fish will eat all the other wildlife; pumps will suck in and destroy all the smaller creatures that other wildlife depends upon for food.

Maintaining Your Pond for Wildlife

General Rules for Maintaining your Wildlife Pond:

- Avoid chemical treatments at all times.
- Be careful when digging or raking near or in the pond – an impetuous spade can puncture a butyl rubber liner very easily; if using a rake make sure the tines are pointing upwards!
- Avoid disrupting the pond in spring and summer; try to carry out maintenance work in autumn and winter instead.
- When introducing pond plants, native species are usually of more benefit to wildlife than exotics. For the wildlife pond purist, pond plants could be native not just to the UK, but also specifically to Northumberland.

Wildlife at Work

Wildlife Ponds

If the pond can be kept in a relatively balanced ecological state, it shouldn't need very much maintenance at all. Problems don't usually start until the pond is over 5 – 6 years old. The main things to watch for are:

- **Build up of Dead Organic Matter:** such as fallen leaves and dead vegetation which reduces oxygen levels of the pond and has a detrimental effect on pond wildlife. However, some dead organic matter is useful as a substrate for plants and invertebrates. De-silting can be carried out approximately once every 5 years. The best time is in autumn before wildlife and minibeasts go into hibernation and after plants have finished flowering. Leave dredging's on the edge of the pond for a few days so that minibeasts can escape back into the pond.
- **Encroaching Vegetation:** After a while, some pond plants may be growing too abundantly; these can be pulled out or divided to reduce their presence by about 30 – 50%. Once again, this should be done in the autumn. Some plants can be grown in a pot, which limits their spread.
- **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.

- **In Winter:** 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. Using hammers and 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. Tap water is the most convenient source, but the high level of nutrients such as fluoride and chlorine may cause algal blooms, whereby the water turns a vivid green pea soup colour. This should fade after a few days as the pond recovers its balance. 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.