Ponds for Wildlife

Why make ponds?

There has been an incredible loss of natural pools, ponds and wetland habitats in our countryside, along with declines in the populations of the plants and animals they supported. By incorporating a pond into your garden you can create an oasis which will benefit a huge range of associated wildlife, being an important habitat for everything from the smallest freshwater invertebrates and aquatic plants, to breeding populations of frogs, toads and newts, as well as a place for birds and mammals to drink and bathe. Cornwall is thought to have a lower density of ponds than other parts of the country; creating these habitats within gardens may therefore play an even greater role in helping to conserve our biodiversity. A wildlife pond is also an attractive feature and will give you endless pleasure as you watch its visitors come and go.

Planning your pond

Natural ponds come in many shapes, sizes and locations, each suiting a different plant and animal community but your garden pond may support the greatest biodiversity if it has these key features:

- A sunny, sheltered position
- Away from overhanging trees to prevent over-enrichment from leaf litter
- A varied depth profile with lots of shallow water and up to around 30 cm at its deepest point.

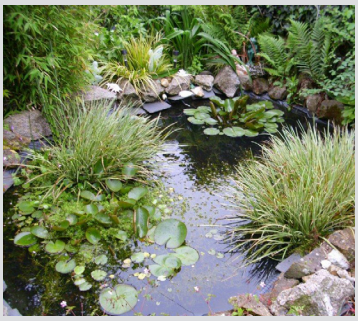


Photo: Frankie Cowling

- At least one side sloping gradually to dry land with an associated marsh or bog area
- Well-vegetated edges and some cover nearby (e.g. area of long grass or log pile) giving shelter to amphibians and other creatures as they enter and leave the pond

If you don't have the space even a small container pond can be useful. For example, you could use an old sink or trough; just make sure creatures can get in and out by creating slopes to the edge. If you have lots of space, you could make a cluster of small ponds rather that a single large one, to provide a variety of habitats. For advice on pond creation in the wider countryside, contact the Wildlife Information Service.

Make sure that the location is suitable and will not destroy a habitat that is already good for wildlife such as an old wildflower meadow or wetland area.

It is estimated that about three quarters of all UK ponds have been lost in the last 100 years

Digging and lining

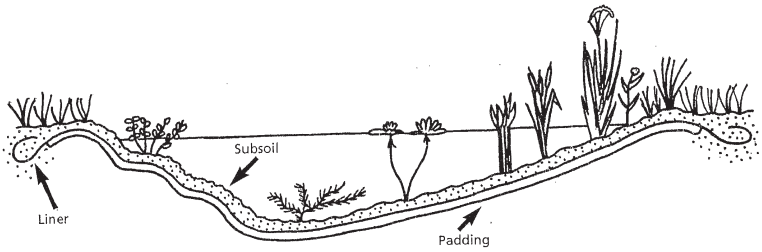
Ponds can be dug at most times of the year but a pond started in spring will develop the fastest. Place the deepest point off-centre, shaping the sides with gentle contours, gradual slopes and perhaps shelves. Remember that most of the pond's wildlife activity occurs in the shallows.

Dig the hole a few inches deeper than the pond to allow for padding – carpet, sand or pond liner underlay – and remove anything sharp. There are several materials which can be used to line a pond such as clay, concrete and pre-formed linings, but the best method is usually to lay a butyl rubber or other flexible liner, which is durable, flexible, moderately cheap and easy to work with.

To work out the size of liner needed for your pond, use this formula:

(length of pond + twice maximum depth)
x
(width of pond + twice maximum depth)

Next…..Lay the liner on top of the padding. There's no need to add sludge to the bottom of your pond to 'get it started' as sediments will develop naturally over time.



Pond profile: a variety of plants that prefer growing at different depths; shallow water to attract lots of wildlife activity; and grassy edges.

Filling with water

It is best to allow your pond to fill naturally with rainwater (or use collected rainwater) as tap water contains minerals and nutrients which can encourage the growth of algae. If you do fill the pond yourself, trickle water into the pond over a plastic sheet to avoid disturbing the soil. As the pond fills, the weight of water will push the liner into the exact shape of the hole. Now bury the edges of the liner; there's no need to trim off the excess as the buried liner will serve to impede drainage and encourage damp-loving plants around the pond.

Stocking

You don't actually have to plant up your pond. Pond wildlife is very well adapted to finding new sites and natural colonisation will happen quite quickly, especially if there are other ponds nearby. This also avoids introducing species which would not naturally establish there, and new ponds will provide habitats for some plants and animals not found in more mature ponds.

However, if you do introduce plants you will have more control over its appearance. Leave the pond to settle for a few days before planting. As a rule of thumb, plant up about a third of the pond's area, leaving the rest as open water. (Whenever plant cover spreads to two thirds you should reduce it back to one third.) Aim for a mixture of native species suitable for each depth: submerged and floating-leaved plants (deeper water), emergent plants (shallows and ledges) and marginal plants (pond edge and bog areas). Variety in the structure and density of the plants will help create diverse habitats to encourage a range of wildlife and maintain a stable natural balance, preventing one species from becoming dominant. Plants can also be grown in pots to limit their spread. Make sure there are sufficient areas of cover such as logs, stones, long grass and rough vegetation at the pond edge, especially during winter when these will be used as hibernation sites.

Examples of suitable pond plants

Submerged:

Hornwort (*Ceratophyllum demersum*)
Spiked water milfoil (*Myriophyllum spicatum*)
Alternate water milfoil (*Myriophyllum alterniflorum*)
Water starwort (*Callitriche stagnalis*)
Water crowfoot (*Ranunculus aquatilis*)

Hornwort.
Photo: Chris Gibson

Floating-leaved:

Fringed waterlily* (*Nymphoides peltata*)
Yellow waterlily* (*Nuphar lutea*)
Bog pondweed (*Potamogeton polygonifolius*)
Small pondweed (*Potamogeton berchtoldii*)

Marsh marigold.
Photo: Chris Gibson

Emergent:

Lesser spearwort (*Ranunculus flammula*)*
Water forget-me-not (*Myosotis scorpioides*)
Amphibious bistort (*Pesicaria amphibia*)
Branched bur-reed (*Sparganium erectum*)*
Water-plantain (*Alisma plantagoaquatica*)

Marginal:

Brooklime (*Veronica beccabunga*)
Cuckoo flower (*Cardamine pratensis*)
Gypsywort (*Lycopus europaeus*)
Bog bean (*Menyanthes trifoliata*)*
Yellow flag (*Iris pseudacorus*)
Purple loosestrife (*Lythrum salicaria*)
Ragged robin (*Lychnis flos-cuculi*)
Marsh marigold (*Caltha palustris*)*
Meadowsweet (*Filipendula ulmaria*)
Common spike-rush (*Eleocharis palustris*)

***Native plants that can become invasive; only recommended for larger ponds**

Choosing plants - a word of warning!

You should use native pond plants, preferably from the local area, but these can be quite difficult to source. Try to do some research and find a suitable supplier (www.floralocale.org may help). Unfortunately many aquatic plants readily available from garden centres are non-native species. Some can quickly become invasive and are easily spread between ponds and into the wider countryside, out-competing native plants and causing problems such as blocked waterways.

POND CHECK

The Environmental Records Centre for Cornwall and the Isles of Scilly is running POND CHECK which aims to track down non-native invasive aquatic plants. For more information, identification guides, reporting species, advice on their management and how to prevent their spread visit: www.erccis.co.uk/pondcheck.

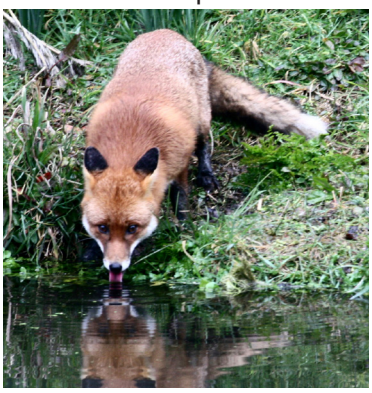
Non-native invasive plants to AVOID:

- **Australian swamp stonecrop/New Zealand pygmyweed** (*Crassula helmsii* also known as *Tillaea recurva*)
- **Water 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/Elodea crispus*)
- **Nuttall's pondweed** (*Elodea nutalli*)
- **Large-flowered waterweed** (*Egeria densa*)
- **Creeping water primrose** (*Ludwigia grandiflora/peploides*)

Attracting pond wildlife

As with plants, there is no need to introduce animals into your pond. If the conditions are suitable, they will quickly find their own way and colonise naturally. You may attract all sorts of aquatic mini-beasts such as pond skaters, water boatmen, water beetles, snails, mayflies, caddisflies, damselflies and dragonflies, along with frogs, newts and toads.

Do not transfer amphibians (either as adults or as spawn) between ponds, as this can spread disease and non-native plants. Do not introduce fish as they only occur naturally in very deep (or stream-fed) ponds and will reduce the wildlife value of any pond, feeding on dragonfly larvae, tadpoles and spawn. Do not install pumps, filters or fountains as they will remove all the smaller creatures that other wildlife depends upon for food.



Your pond may even be visited by thirsty mammals such as foxes and hedgehogs
Photo: Terry Dunstan

Maintenance

Managing your pond should be very easy. Here are some general guidelines:

- The best time to carry out any pond maintenance is late autumn. This should cause minimum disruption to wildlife, avoiding the main times of breeding and hibernation.
- Avoid chemical treatments at all times.
- Keep marginal plant cover to about a third of the pond's surface, leaving the other two thirds for submerged weeds and bare mud. Silt normally takes many years to fill a pond – you shouldn't need to clear any out within your lifetime. Never "clean out" a pond as this will destroy the wildlife community that it has developed.
- Cutting bays into the vegetation helps to create a wavy edge, which leaves the maximum area of edge habitat valued by aquatic invertebrates. Also, try to maintain vegetation across a range of water depths by leaving sections of vegetation that are continuous from the shallow edge into the deeper water.
- If one species is spreading rapidly, plant a competitor next to it or thin out the dominant plant. The best method is to remove small sections of plants by hand. Do not completely remove any plant because some wildlife could be dependent on it for food and shelter.
- Algal blooms might be a problem as a new pond becomes established, but it should soon reach a natural balance. For many invertebrates, small amounts of algae are a valuable source of food and shelter. However, large amounts can prevent light from reaching submerged aquatic plants. Scooping up excessive growth with a net once or twice a week will reduce this problem.
- Always leave cleared vegetation on the banks of the pond for a couple of days so that creatures can return to the pond, then remove, preferably putting it on the compost heap.
- When doing any work, try to avoid disturbing the marginal vegetation or churning up the sediment at the bottom of the pond as this may release an excess of nutrients into the water and affect the ecological balance.
- The use of lawn feeds, compost, pesticides or fertilisers close to the pond has the same effect and should be avoided.
- Be careful when digging or raking near or in the pond – a spade can puncture a butyl rubber liner very easily; if using a rake, make sure the tines are pointing upwards!

In summer.....

Water levels in ponds naturally fluctuate, and can decrease by up to 50cm in the summer months. The muddy zone is required by many pond-living creatures to complete their life cycle and is also useful for birds and small mammals in search of invertebrate food. If you want to top-up the pond, always use collected rainwater. Also remember to leave some of the pond edge vegetation uncut to provide cover.

In winter.....

Ponds are unlikely to become frozen right to the very bottom but you could help to provide some open water by floating a ball on the pond that can be removed, leaving a hole in the ice. Good water quality and lots of submerged plants are important for maintaining oxygen levels and clearing away snow allows light to penetrate. Features such as compost heaps or log piles are valuable refuges for overwintering amphibians.

Ponds and education

Ponds are fascinating habitats and can be an invaluable resource for learning about nature and observing wildlife close-up, particularly for children. Just be aware of safety around water. Pond-dipping, watching changes through the year, and recording plants and animals present are just a few ideas.

Invertebrates such as dragonflies are a wonderful sight.
Photo: Terry Dunstan

Further information and advice

Wildlife Information Service (WIS)
Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS)
Five Acres, Allet, Truro, Cornwall TR4 9DJ

Tel: (01872) 302 250
Email: wis@cornwallwildlifetrust.org.uk
Web: www.erccis.org.uk

Other useful contact

- Pond Conservation
  www.freshwaterhabitats.org.uk
- Amphibian and Reptile Conservation
  www.arc-trust.org
  tel: (01202) 391319
- Cornwall Reptile & Amphibian Group,
  contact via ERCCIS

Get involved

Share your sightings with us
Online Recording for Kernow and Scilly (ORKS)
www.erccis.org.uk/ORKS

Become a member
www.cornwallwildlifetrust.org.uk