#TeamWilder Toolkit: Wildlife Actions - Water

Whether big or small, your outdoor space can help to provide vital wetland habitats for a whole host of garden wildlife. Creating features from bird baths to container ponds and everything in-between means that you'll be helping a multitude of species to thrive.

Contents:

Creating a pond doesn't have to cost the earth and you don't need a large outdoor space! We'll show you how to create a container pond using recycled materials as well as a wildlife pond to suit a variety of outdoor patches.

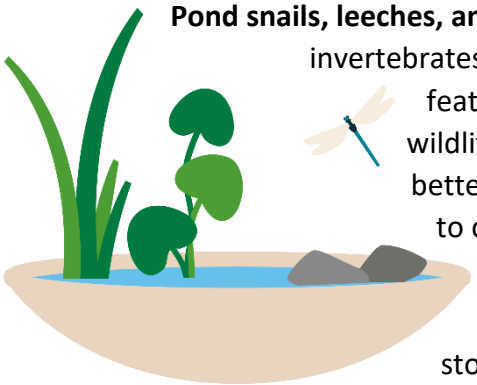
1. Creating a bucket or container pond

One of the best things you can do for wildlife in your garden is to create a pond – it can seem like a huge task so if you are not quite ready for the challenge or you are lacking in space then a small container is perfect.

Even small container ponds provide a source of drinking water and a fantastic habitat that will increase the biodiversity of your outdoor space.

Why is it so important to introduce water to your garden or yard?

Water is an **important part of life cycle for many insects** (e.g. **hoverflies, mayflies, dragonflies, damselflies**). These in turn provide food for other species and before you know it, you'll have a fully functioning ecosystem in your garden. **Frogs and newts** (if you are very lucky) will find their way to your pond, so it's good to ensure you have enough hiding places in your garden for them.



Pond snails, leeches, and worms will also find their way into your pond in time, and flying invertebrates such as **pond skaters and water boatmen** will love your new feature. **Mini ponds** such as container ponds are incredibly valuable for wildlife, and a network of small ponds in a neighbourhood could be better than just a few large ones. Not only that but they are cheap, easy to create and even easier to take care of. Mini ponds can be constructed from a whole range of containers!

Container ponds work well between **20 – 30cm deep** so plastic storage boxes are perfect.

Where to put your container pond:

Your pond will need light, but not full sunlight all day, and not too much shade.

You can **dig a hole and sink your container pond to be at or just above ground level** or simply place it in your garden or yard. This way you'll need to create a ramp up to it so frogs can access your pond – a mini-log or stone pile will be ideal for this. Plus, you get the bonus of two habitats in one!

If you have trees in your garden, it is best to put a **net or wire mesh over your pond in Autumn** so that it doesn't fill with leaves. As leaves decay in the water, they release harmful byproducts, such as nitrates which can upset the natural balance of the water. This can lead to algae blooms and green water in the spring and make your container pond undesirable to pond life (and smelly!)

Creating your container pond:

1. **Scoop a layer of gravel into the bottom of your container.** This will provide a habitat for freshwater invertebrates that make your pond their home. It also provides a place for you to anchor your oxygenating pond weed.
2. **Choose a ramp and add this to your pond.** A ramp is important to enable creatures to climb in and out – particularly **newts and frogs** who need to get in and out of the water easily, and **hedgehogs** who may fall in when getting a drink. **Birds** will also perch here to drink. A ramp could be a log, a large rock, a stone pile, or timber with grooves to enable creatures to get a better grip.
3. **Add some large pebbles** – varying sizes of pebbles or rocks will provide varying depths of water and nooks and crannies for invertebrates and amphibians to hide amongst.
4. **Fill your container pond with rainwater or let it fill up naturally** – tap water is more susceptible to algae and less attractive to creatures, but if you do need to use tap water let it stand for over 3 days, so the chemicals have dissipated.
5. **Add some plants** - growing pond plants in aquatic baskets works well for small ponds as it stops them spreading. These pots have lattice sides to allow water, air & other gases to flow through.

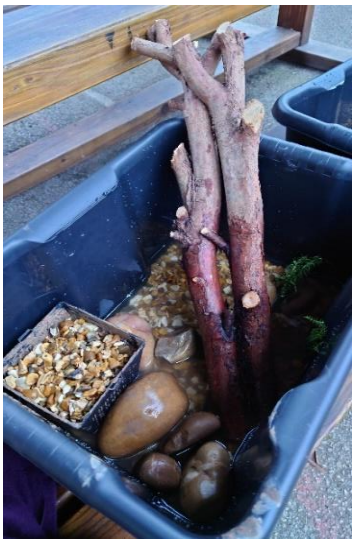


Photo of container pond: Jo Rawson

Plants for container ponds: *

- **Mares Tail (Hippuris vulgaris) -** Shallow water marginal native pond plant which is useful both as a marginal and can act as an oxygenating aquatic plant. **Oxygenating plants are vital because they produce oxygen through photosynthesis, which is essential for the survival of aquatic life** – they keep water conditions favourable for all life in your pond. Its stems are covered in linear, blue-green foliage - some are submerged, whilst some grow upright above the water surface. It provides useful cover for aquatic wildlife and should be planted at a depth of 6-20 cm (3-8 in). This plant will send **roots** off on vine like stems and absorbs nutrients from the water. It's easy to maintain will become dormant during the winter with new growth during late spring.
- **Pink Flowering rush (Butomus umbellatus)** - a beautiful native water plant with heads of pretty, rose pink flowers in July and August which are higher than the leaves. You can plant pink flowering rush in any depth of water from 5-45cm (2-18in). Tall, emergent plants like these provide habitat for pond insects, especially emerging dragonflies. It spreads with creeping rhizomes (underground

stems) and needs to be planted in fertile mud and situated where it will get the sun. Cut back after flowering and trim just above the water after the foliage dies back in autumn.

- **Miniature waterlily (Nymphaea 'Pygmaea helvola')** - a very small water lily with wonderful yellow flowers. It is an ideal lily for a container pond and its leaves provide shade and shelter for pond inhabitants. The roots of water lilies absorb excess nutrients preventing excessive algae growth.
- **Lesser spearwort (Ranunculus flammula)** – a native shallow water, marginal pond, plant with bright yellow flowers, and bold blue-green leaves. An attractive small plant with masses of small golden yellow flowers. The leaves are spear shaped giving it its common name. It has a long flowering period which make this plant very attractive to bees and other pollinators.
- **Starwort (Callitriche stagnalis)** - native, oxygenating plant. The pale green leaves are linear where submerged and form pretty, starry masses where they reach the surface. Callitriche is good for improving water quality, absorbing nutrients and maintaining a clean and healthy pond. It provides a sheltered habitat for wildlife and is particularly favoured by newts as a place to lay their eggs. After it dies off in Autumn, the seeds remain dormant over winter, and it will start to germinate once the weather gets warmer. Spring is a good time to buy plants.
- **Marsh marigold (Caltha palustris)** – a native shallow water plant also known as king cup with large golden flowers in March. It gives an early boost of colour to your gardens letting you know that spring is truly here. Suitable for planting in all types of ponds, it is happy in wet mud or up to 10cm (4 in.) of water. It prefers to be positioned in full sun and will make a clump of up to 45cm (18 in) across and 30cm (12 in) tall.

* Information from www.wetland-plants.co.uk and www.naturescape.co.uk

Where can I buy pond plants?

Many garden centres sell native pond plants, or you can order them online from suppliers such as those mentioned above.

What if my container pond gets full of duckweed?

Remove duckweed using a small net or your hands. Blanketweed can also be pulled out in small amounts at a time, but be careful to check for trapped newts, water boatmen, or other creatures. Swill the weeds in a bucket with pond water before adding the wildlife back to the pond or pile up your removed duckweed at the side of your pond so creatures can find their way back. Then compost the duckweed before it blows back into your pond.

What if my floating weed takes over my container pond?

You can cut back vigorous plants and compost any excess. Just leave them in a pile at the side of your pond for a few days to make sure any pond creatures can find their way back into the water.

2. Creating a wildlife pond

Planning a wildlife pond doesn't require lots of research but taking a good look at the space that you have will help you to create a thriving habitat for nature. Here are some elements that we recommend considering before picking up your tools and getting stuck into digging:

It's all in the timing. A pond can be created at any time of year – however, the optimal time to start one is during autumn or winter. This will give your pond plenty of time to establish before spring when you'll start to see it becoming a habitat for a variety of wildlife.

Location, location, location. It is better for wildlife if you put your pond in a warm, sunny area – species such as tadpoles, dragonflies and plants will thrive in these conditions. Barriers such as walls, sheds and fences can be good for protecting your pond from adverse weather but watch out for trees and bushes overhanging your chosen location as these can shed leaves which may clog up your pond.

You may also want to think about locating your pond in a low-lying spot as well as considering the potential flood risks posed to structures surrounding your location.

If you've got the space, ponds of at least 2m x 2m are best for wildlife but small ponds make a great feature and will still be a welcome addition for a variety of wild visitors to your garden.

Peaks and troughs. Think about the topography of your pond. A mixture of shallow (less than 30cms) and deeper (over 60cms) areas in your pond allows for spaces where amphibians can hibernate. A sloping 'beach' is also ideal to allow birds and other animals easy access. Dragonflies like a sunny pond and some clear space for egg laying. You may want to draw up a rough sketch of where you'd like these areas to sit so that you're prepared when you begin digging.

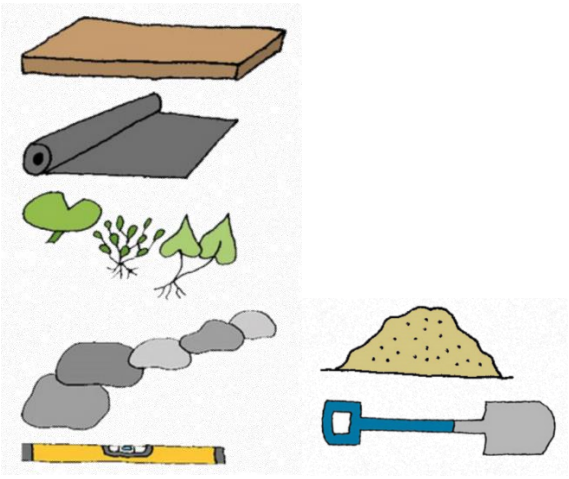
Planning complete!

Photo of a garden wildlife pond: David Craven

Follow our step-by-step guide to create your wildlife pond:

You will need:

- A big patch of garden
- A plank of wood
- Pond liner - preferably made of butyl rubber, which is durable, flexible, moderately cheap and easy to work with
- A variety of pond plants
- Some large rocks
- A spirit level
- Builder's sand
- A good spade or mini-digger depending on how big your pond will be.
- Water (use rainwater for best results)

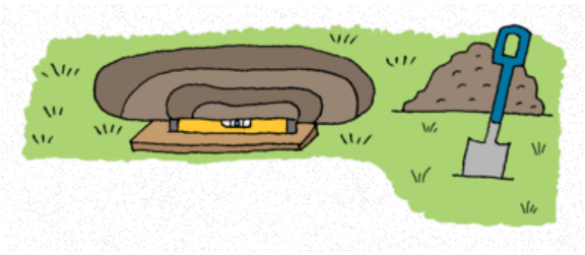


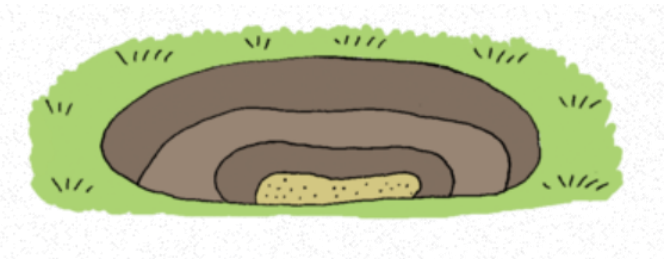
Step 1:

Get started by marking out your pond on the ground. You can do this using pegs and string, but a rope or hosepipe also work well.

Step 2:

Start digging! If you've drawn up a plan of your pond during your planning, then use this to guide you as you go. Ensure that the sides of your pond are level as you dig by placing a plank across the pond's hole with a spirit level on top.



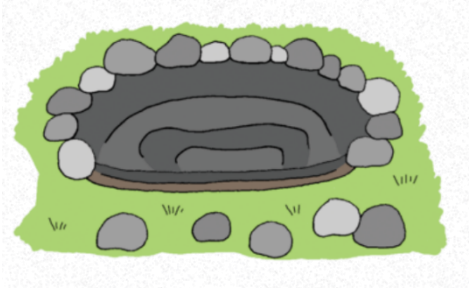


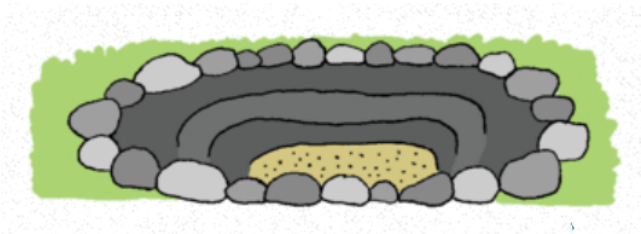
Step 3:

Remove any sharp stones from the bottom of your newly dug pond and put down a 5 cm-thick layer of sand to line the hole. We recommend sand as it's sterile and won't harbour any microbes, but you can also try old carpet, newspapers or even loft insulation material.

Step 4:

Dig a trench around the edge of the pond for the overhanging pond liner to drop into. Place the liner carefully in the hole and tuck the edge into the trench; weigh it down with large rocks. Any extra excess liner can be snipped off with scissors.



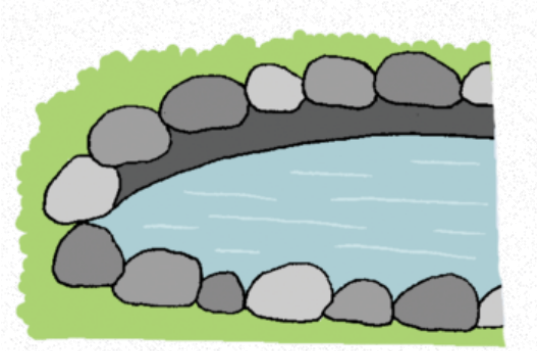


Step 5:

Fill the bottom of the pond with the remaining sand.

Step 6:

Fill the pond up, this may take longer than you think. If possible, use collected rainwater to fill your pond or fill from the tap with a hose. To stop the sand substrate dispersing, rest the nozzle of the hose on a plastic bag to absorb some of the energy. If you do fill your pond with tap water, then leave it so stand for a few days before adding it in.



As the pond fills up, the liner will stretch. Back fill the trench around the edge of the pond with soil. 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 too long.

Step 7:

Plants can be introduced to your pond 1-2 weeks after the initial filling with water. Carefully selected native species will support your local wildlife.

Step 8:

Watch and see what wildlife visits. Place stones, logs and plants around the edges to create habitats for pond-visiting creatures. Consider adding a plank of wood or a similar ramp to help any wildlife that might fall in. By including a gently sloping beach area when digging your pond, you can ensure wildlife have an easy way out.

Pond mainenance: If plants are well chosen, and the pond is kept in a relatively balanced ecological state, it shouldn't need much maintenance at all. However, do keep an eye out for a build-up of dead organic matter and encroaching vegetation. A small amount of duck weed and algae such as blanket weed isn't a problem, but if this growth gets excessive and covers most of the surface it will stop sunlight reaching the submerged oxygenating plants.

If this is the case you can remove by simply scooping the duck weed and algae out with a net. Place it next to the pond for any creatures to crawl back in, then add it to your compost heap after a few days. If you want to give the creatures more of a helping hand, you can wash them out of the algae in a bowl of pond water.

If you find that your wildlife pond has become full of old decaying leaves then don't despair!

Leave it until late autumn to scoop out decaying plant matter using a net and refresh with rainwater as you could have the perfect **hoverfly lagoon**! Don't worry if your water looks murky after doing this - after a few days any sediment will settle, and the water will appear clear again.

Did you know that 40 species of hoverfly larvae (rat-tailed maggots) need a nutrient rich water body?

For more information about creating ponds in your garden see this fabulous guide:
190212 WAG Booklet new logo web.pdf

3. Hoverfly lagoon:

Hoverflies are 'incidental' pollinators - whilst the flies feed on nectar, pollen is transferred to their bodies and passed from flower to flower. They visit lots of flowers, making them great pollinators. Many species of hoverfly such as the common drone fly lay their eggs in water and this is where their larvae (rat-tailed maggots) live before emerging from the water, entering the pupa stage of their life cycle, and then emerging as hoverflies. **To make a hoverfly lagoon, you can use a container filled with water, leaves, grass, and twigs.**

What you need:

- A watertight container, such as an old bucket, plant pot or milk bottle (with top cut off)
- Sticks, leaf litter and/or grass cuttings
- Something to make holes with
- Water

Photo of a hoverfly lagoon: Jo Rawson

How to make a hoverfly lagoon:

1. **Poke or drill some holes around the top of your container approx. 2cm below the rim to allow excess water to flow out**
2. **Add a thick layer of grass cuttings and/or leaves to the bottom of the container**
3. **Fill the container with water**
4. **Add more leaves and vertical twigs so the larvae can climb up when they're ready to pupate (ensure these stick up above the surface and down to the bottom of the container)**
5. **Add extra clippings or leaf litter to the surface**
6. **Place the container in a shady spot on or near leaf litter for the pupa**

4. Make your own bird bath

Even small spaces have room for a bird bath – this can provide vital water for birds to drink and wash. They are the ideal spot for them to rest and offer the chance of a quick dip to keep their feathers nice and clean. Providing a watering hole for birds may help to improve the volume of birds in your outdoor space as well as giving them a safe and clean area to bathe.

You will need:

- A watertight, shallow bowl or dish (some good examples of these include plant pot saucers, a bin lid, old frying pans)
- A sturdy base for your bowl or dish (this could be an upturned pot or planter, a pile of stacked materials such as bricks, an old barrel or even a tree stump – endless possibilities!)
- Stones
- Water

Creating your bird bath:

1. **Choose the ideal spot for your bird bath!** We recommend somewhere where the base and saucer will sit sturdily without the need for glue.

Top tip! Select somewhere open where prying paws don't have any hiding places to pounce from and visiting birds have a good vantage point.

2. **Place down your sturdy base.** If you're using a pile of stacked materials such as bricks, lay them in a square large enough to hold the bowl or dish on top.
3. **Now put your bowl or dish on top of your base.** Make sure it's durable enough for larger birds such as wood pigeons to land on without tipping over.
4. **Gather your stones together and arrange them so that birds can perch to drink without sliding around.** Bees may also use the bath to drink from so these stones are important for them.
5. **Fill with clean, fresh water and see who comes to quench their thirst!**
6. **Dependent on how popular your bird bath is, you'll need to wash it out regularly, scrub it and disinfect with vinegar diluted with water (we recommend 1 part vinegar to 9 parts water).**

5. Ground Level water dish

Animals need access to water all year round and this can be in short supply because of drought and the loss of ponds and wetlands. Put a bowl of water on the floor of your garden or yard, you can put some stones in so that smaller animals can perch and drink. Make sure you keep it fresh and defrosted in the winter.

6. Build a bog garden

Bog gardens can be a preferable option for those with young children as they are shallower than a pond but still attract a wide variety of wildlife. Frogs, toads and even grass snakes will be attracted to the lush pastures provided by a bog garden. Dragons and damselflies will settle atop taller grasses and bees and butterflies will flit around the flowers.
Another bonus is that the plants that thrive in a bog garden setting are often the most striking so will create a real impact in your garden overall!

You will need:

- A rope, hose, or length of material to measure size.
- Shovel
- Butyl liner
- Sharp scissors (to cut slits into liner)
- Rainwater or tap water
- Plants for your bog garden

Suggested plants:

- **Creeping Jenny** - *Lysimachia nummularia*
- **Hemp-agrimony** - *Eupatorium cannabinum*
- **Marsh-marigold** - *Caltha palustris*
- **Meadowsweet** - *Filipendula ulmaria*
- **Plantain lily** - *Hosta* spp.
- **Snake's-head-fritillary** - *Fritillaria meleagris*
- **Water Avens** - *Geum rivale*

1. **Decide on the size of your bog garden.** Lay out a length of rope or hose to help you to work this out. Beware of making it very large as it will be harder to maintain, and steppingstones may be required!

   Top tip! If you don't have the space for a bog garden, you can create a miniature one using a container. This will likely dry out more quickly than a traditional bog garden so remember to top it up with water frequently.

2. **Research your plants.** Unlike pond plants, bog plants thrive in soil with high nutrient levels and that contain lots of organic matter. There is a huge variety of bog plants, from creeping Jenny to tiny water forget-me-nots. Make sure to do a little research on whether your plants are sun – or

shade-loving, what degree of damp and acidity they prefer, and the amount of space they require. **Don't forget!** Ask for peat-free when buying plants.

3. **Establish your bog garden.** Making an artificial bog is very much like making a pond. Pick a spot on level ground, away from overhanging trees.
4. **Dig a hole about 30cm (12 inches) deep.** Lay a butyl liner in the hole. Make a few drainage slits in the liner and return the excavated soil, mixed with some organic material, to the hole.
5. **Water the soil thoroughly - try to use rainwater, especially if the soil is acidic.** If tap water is your only means of filling, let it stand for a few days to allow any additives to break down. Leave the soil to settle for about a week before planting up.
6. **Plant your bog garden plants.** We recommend using a combination of short and tall plants for cover and perches. Be careful what you plant as some species can be vigorous, aggressive, or very large, such as pendulous sedge and gunnera. Think about planting so that there is a range of flowers throughout the year, from marsh-marigold in spring, to hemp-agrimony in autumn.

7. Rain garden planter

Rain garden planters have lots of benefits – one of these being that they are good for both larger and smaller spaces. They also provide a habitat for wildlife and help to stop flooding by collecting excess rainwater.

You can buy planters which are ready-made, but it can be really rewarding to create your own if you've got the time and are able to get materials. When it comes to choosing plants for your planter - despite the name - make sure to choose a variety of plants which can survive in different conditions, from drought to floods and hot to cold!

A rain garden planter creates the opportunity to manage rainwater runoff from hard surfaces like your roof by planting an attractive, low maintenance, wildlife-friendly space. Rain garden planters provide habitats for insects and wildlife, capture excess rainwater to prevent flooding and filter out pollutants to keep our water clean. With so many benefits, it's easy to see why they are becoming a lot more popular in our towns and cities.

How to create your rain garden planter:

1. **Buy or make a planter** – the size of your planter will depend on the space you have available. There are many slim rain garden planters available that will fit well in a small garden or yard. Check there is room for it to be positioned to drain into the existing drain.
2. **If you are making your planter yourself,** make sure it is watertight – you could use a pond liner for this. Drill a hole in the side or end of your planter using a flat head bit or hole-saw. The plastic drainage pipe will need to go through this hole so position it accordingly.
3. Add a **drainage pipe to the bottom of the planter** – this should be connected to the overflow pipe and lead out the bottom to allow excess water to flow down the drain (see illustration)
4. **Cover the pipes with gravel** to create a base layer (storage layer) with the drainage outfall pipe running through – about 150-200mm gravel works well.
5. Then add a **permeable membrane** (geotextile) to prevent soil from washing into and clogging the storage layer/outfall pipe, then add a thin layer of sand.
6. **Fill your planter with a mix of sand/soil/compost** at least 350mm deep for plant health.
7. Use a **drainpipe to funnel rainwater** into the planter.

8. **Add your plants** - species such as purple loosestrife, yellow flag iris, meadow vetchling, greater birds foot trefoil, sneezewort, common valerian and hemp agrimony will grow well in your planter.
9. **Cover bare soil with surface mulch** - stone, bark etc. retains moisture and reduces erosion to the soil.
10. **Allow extra space at the top of the planter** in case it fills up in severe rainfall events – this will allow water to escape through the overflow (usually 50mm – 100mm recommended).

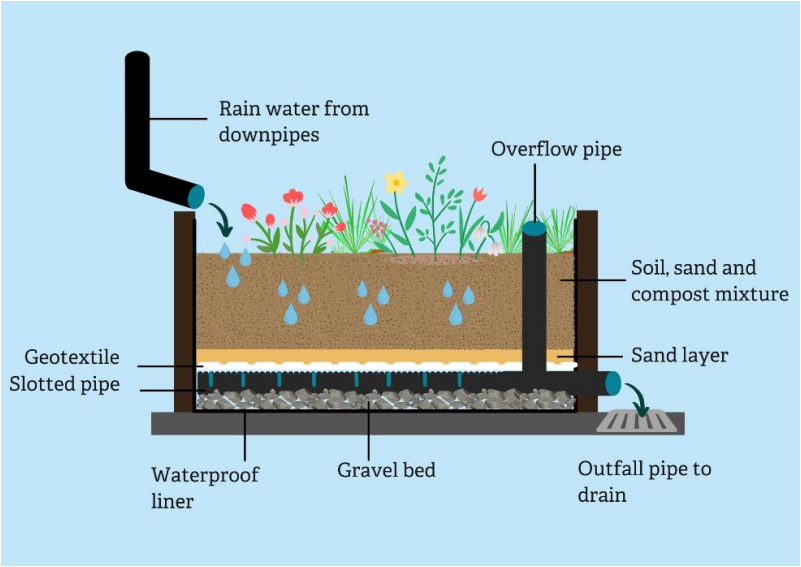


Illustration of a rain garden planter with thanks to Gloucestershire Wildlife Trust.

For more information download a copy of the UK Rain Garden Guide here:
www.gloucestershirewildlifetrust.co.uk/sites/default/files/2022-02/UKRainGardenGuide.pdf

Or visit: www.groundwork.org.uk/how-to-create-a-rain-garden-planter/

Sustainable drainage (or SuDS) can be used to capture water through systems such as ponds and rainwater gardens to slow and reduce the flow of water into drains. This water goes back into the environment and can be used by plants, permeate into the ground, or evaporate into the air. SuDS require careful neighbourhood planning but can be beneficial to wildlife, help to reduce the human impact of flooding and prevent drains from being overwhelmed by large volumes of water.

8. Adaptive gardening for climate change

As our climate continues to change, choosing plants and adjusting the way you garden is crucial to getting the best out of your growing conditions. In this section, we'll give you some ideas for ways that you can adapt your approach for gardening sustainably.

Water butts: Water butts are a good way of providing water supply using rainwater and will help you keep your thirsty garden thriving during periods of drought. Larger than standard water butts will ensure that you've got enough capacity to see the summer through.

Drought-resistant planting: Drought-resistant plants can make a real visual impact in your garden and thrive even during hosepipe bans. Here are some of our top tips for choosing drought-resistant plants:

- Take inspiration! Research photos of gardens in hot and dry areas to see what kind of plants are growing together as these will naturally look and work well together. Mediterranean gardens need to be established during springtime but are popular and lush as well as containing plenty of drought-resistant plants.
- Get to know your soil. You'll need to use plants which benefit from your soil's type as well as the aspect within your outdoor space.
- Aim to plant your drought-resistant plants whilst they are small.

This toolkit has been created with credit to The Wildlife Trusts.