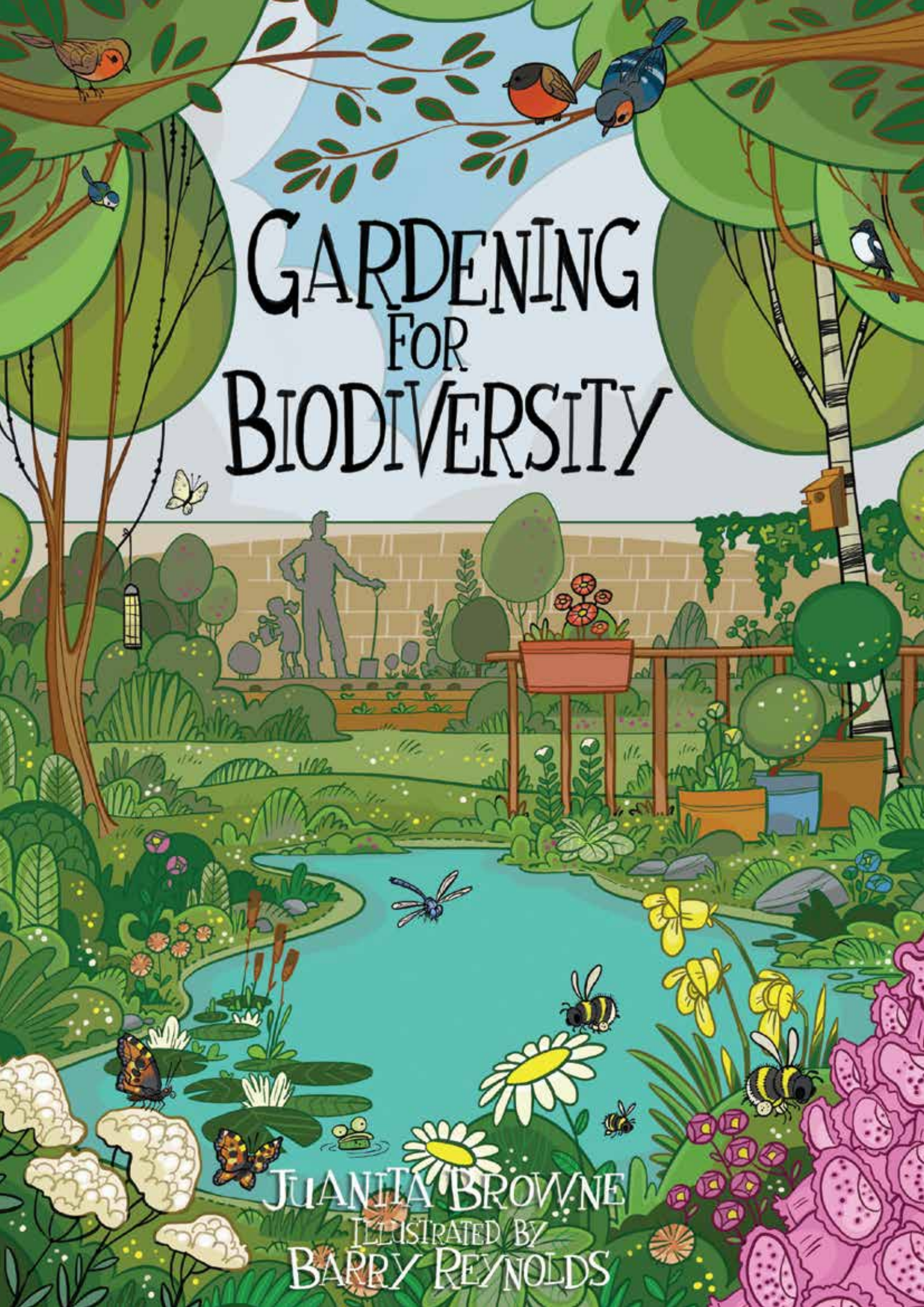




GARDENING FOR BIODIVERSITY

JUANITA BROWNE
ILLUSTRATED BY
BARRY REYNOLDS

Introduction

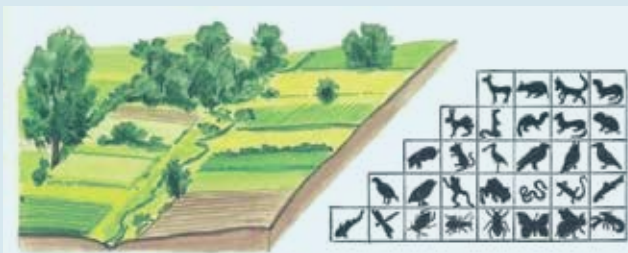


Ireland's countryside is becoming more and more managed, more uniform, and perhaps even more sterile. As we develop more land for housing and infrastructure, and intensive agriculture has become the norm in recent decades, this results in nature being 'squeezed out'. If we want to do something about this, we could decide to start to create change right outside our own doors. Private gardens represent a huge potential habitat and refuge for Ireland's pressured wildlife.

Scientists agree that we are currently witnessing the 6th Mass Extinction, and the Irish Government declared a Biodiversity Emergency, but what does all this mean? On a global scale, we are losing species at a rate comparable to the extinction of the dinosaurs. In Ireland, we are seeing declines

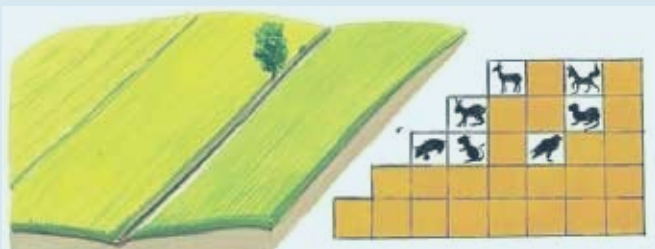
in our insect, bird, fish, mammal and amphibian populations. This is due to a variety of factors, including habitat loss, habitat fragmentation, pesticide use and climate change.

The aim of this booklet is to introduce some of the ways you can help biodiversity in your own garden - no matter how big or small the space - and no matter where you live. There are lots of ways in which you might want to open your garden up to nature - even in very small ways - perhaps by hanging up a bird box; or in larger ways, such as making a wildlife pond. Gardens of schools, businesses, religious properties and hospitals can also become biodiversity-friendly.



As we have developed housing, infrastructure and roads, and as Ireland's agriculture has become more intensive, we have lost important habitats, such as wet field corners, ponds and ditches, which have been drained; hedgerows which have been removed or are cut too tight, or too often. As we lose this variety of habitats, we lose the patchwork of vital niches for native animals and plants, making the countryside habitable to fewer and fewer organisms.

These landscape pressures, which are removing natural habitats from the countryside, make our gardens, parks, road verges and public spaces, even more important for our biodiversity.



Goldfinch © www.irishgardenbirds.ie



Common Blue butterfly © Liam Lysaght



Daubenton's Bat © Frank Greenway

Every Garden Is Important!



There are over 2 million domestic gardens (or 359,000 acres) in this country. Just imagine the difference it could make if 2 million gardens became biodiversity friendly!

But we wouldn't just be opening our gardens to nature for altruistic reasons. Gardening for Biodiversity also has advantages for human health and wellbeing. Research has shown that the more urbanised humans have become, the more we actually need exposure to nature. It's good for your brain! A sterile garden, with tightly mown grass, or hard/artificial surfaces, offers humans no exposure to nature, no buzz from busy insects, no birdsong, no life.

People feel better when they are surrounded by nature and indeed this sense of wellbeing increases directly with an increase in biodiversity - the wilder the area, with more different types of plants and animals, the better you will feel! A visit to a town park with tightly mown lawns cannot compare to how good you feel on a walk through a wildflower meadow or a semi-natural woodland. So just imagine the health benefits of bringing some of that feel-good nature right to your back door!

Inviting birds, butterflies, bees, wildflowers, and trees

into your own garden won't just help the planet, it will help you, too!

Indeed in a time of climate and environmental 'anxiety', wildlife gardening is a great way to help you to feel like you're doing something positive to help your local wildlife and community, including the farmers who depend on pollinators - by making room for nature on your patch of land.

Sometimes in Ireland, we take owning a garden for granted. A friend of mine who lives in an apartment in Japan shares his garden with 700 of his neighbours!

Did you know that Ireland's houses are the biggest in Europe? Our gardens probably reflect this, too! What an honour it is to be able to manage this little patch of the planet and decide exactly what can grow there. You have the power to decide what creatures can share this space with you. Perhaps there is room for some more of our native biodiversity on your patch?

The varied living conditions in your garden, from hedges and walls to ponds, grassy areas, and trees, offer potential food and shelter for our native biodiversity.

Inviting birds, butterflies, bees, wildflowers, and trees into your own garden won't just help the planet, it will help you too!

We can all help to form a patchwork of biodiversity-friendly gardens across the countryside.



What is 'Biodiversity'?

When we think of the word 'wildlife' we tend to think of wild mammals, such as squirrels, or perhaps birds. Biodiversity is a better word to describe all the different types of organisms on earth, including plants, fungi, insects, spiders, amphibians and so on, as well as the diversity of ecosystems in which they are found, and the genetic diversity within each species.

Small is beautiful!

To help Irish wildlife, we need to consider all of our biodiversity, in order to create healthy diverse ecosystems. It's actually the small plants, the wildflowers and the bugs, caterpillars, spiders and other 'creepy-crawlies' that are so important as they form the base of the food webs that support all of the more 'attractive' birds and mammals we may want to help the most. There are a lot more invertebrates than there are mammals or birds. But without all the small guys, our charismatic larger fauna can't survive!

As 'wildlife gardeners', we must also accept our limitations - our gardens cannot attract species that need large natural areas in which to roam, for instance the endangered Curlew isn't going to turn up in your garden, nor are we ever going to be able to make up for the large tracts of natural habitat that are needed for the survival of many of our wild species, but we also shouldn't underestimate the impact we can have - by making simple changes, for instance for pollinators, we're not only helping the bees and butterflies in our garden, we're also setting an example for other gardeners, and helping to create a new 'norm' for how the landscape could look.



Four keys to gardening for Biodiversity:

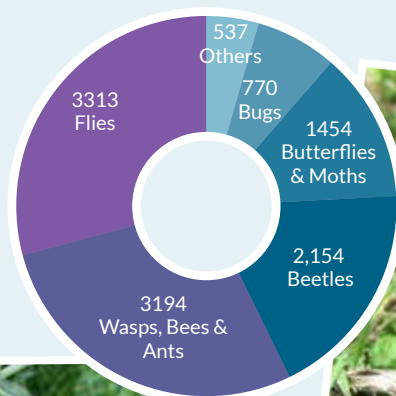
- 1 Food
- 2 Shelter
- 3 Water
- 4 Biodiversity-friendly management

Whenever we try to help a species/group in our garden, we should consider how we might provide **food, shelter and safety** for that group and if our garden management may be damaging to it in any way. While we can never replicate natural habitats that have taken many thousands of years to evolve, we can try to replicate semi-natural 'mini-versions' that meet these needs, for instance an area of your garden that mimics a woodland edge, a wildflower strip that mimics a meadow, or a section of native hedgerow or small pond.

A note on Native V. Ornamental plants

Native plants are valuable in their own right and also tend to support far more species of insect than hybrids or ornamental plants, so they should be used as much as possible. However, in some cases, garden or 'ornamental' varieties can extend the season for some animals, for instance Mahonia is a shrub that offers lots of pollen and nectar for bees in winter. So using non-native plants in a wildlife garden can still be helpful.

Irish insect species diversity



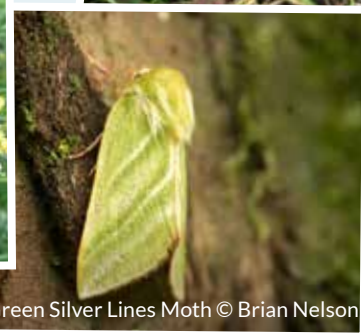
Woundwort



Large Carder Bee © Michael Keating



Poppy



Green Silver Lines Moth © Brian Nelson

Beetles

Beetles are thought to be suffering declines similar to those seen in bees and butterflies, but we simply don't have as much research data on beetles. One UK study (Journal of Applied Ecology, 2012) showed a 28% decline in 68 ground beetle species in pastureland. Possible causes include climate change, habitat loss/fragmentation, pesticides, and the transfer of medicines given to cattle.

Are beetles important?

Yes! Aside from their role in food webs and ecosystems with other wildlife, beetles are important decomposers and are vital to recycling nutrients and returning them to the soil. For example, Dung Beetles play a hugely important role in farmland by helping break down animal faeces, recycling nutrients, aerating the soil, and improving drainage. Dung Beetles are also vital to quickly remove parasite-laden faeces that are harmful to livestock. It is known that Dung beetles have suffered huge declines in recent years.

Ladybirds - natural born killers

Did you know there are 21 different types of Ladybird in Ireland?

Everyone knows ladybirds, but would you recognise a young ladybird? This is what a ladybird larva looks like and, like the adults, they are fierce predators of aphids, so should also be a welcome resident in your garden. Don't tidy up too much in autumn. Leave hollow-stemmed plants over winter as shelter for hibernating ladybirds.

Ant/Ladybird larva/Earthworms/
© Shutterstock.
All others © Brian Nelson



Ladybird larva

Natural Pest Control

Many organisms in your garden, including wasps, lacewings, beetles, spiders and centipedes are natural pest controllers - as well as being a food source for birds and mammals.



Soil Biodiversity

We tend to forget about the biodiversity to be found under the soil surface. The Common Earthworm, *Lumbricus terrestris*, is just one of 27 earthworm species found in Irish soil. Earthworms are vital to healthy soil, benefiting crop yields and healthy plants. As they move up and down through the soil, earthworms aerate the soil and create channels that allow more efficient drainage and irrigation. This also prevents soil surface run-off, prevents flooding, and means less watering is needed.

Earthworms surface at night to pull down fallen leaves and detritus into their burrows and, as they move, they mix nutrients throughout the soil. The soil structure produced by earthworms contributes to healthy root systems. They also perform waste disposal in the garden, removing surface debris and fungal spores. They don't eat healthy living plant tissue, so not only will they help you greatly in your garden, but they'll also leave your living plants alone!



Healthy worms
= healthy soil



Did you know that Ants are responsible for planting one-third of the world's seeds!

Five Gold-star plants for biodiversity:



Dandelion

Dandelion is the most important plant for insects in early spring. From mid-March until mid-May it provides vital food for bees and other early-flying insects such as butterflies.

Later, when the flowers disappear, birds feast on the seed-heads. Dandelion seed is a favourite with birds such as the Goldfinch and Greenfinch. The plant's leaves are also food for some moth larvae, including the lovely Garden Tiger moth. (And not to forget, dandelions allow you make wishes!)

Between birds and bees, what more could one flower offer to the world?



Heath Bumblebee on dandelion © Anneke Vrieling

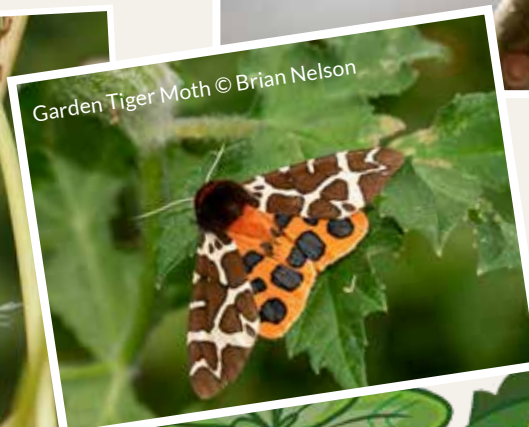
Willow

Willow is a wonderful tree for bees as it provides lots of nutritious pollen in its tiny flowers in early spring when there is little else in flower.

We may not recognise the Willow's soft yellow profusions as 'flowers' but they are actually made up of hundreds of tiny flowers bursting with pollen and nectar!

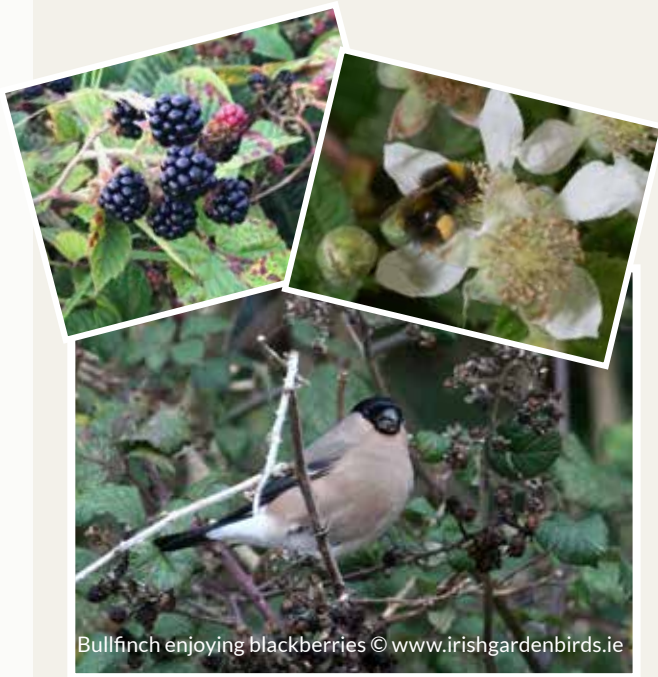


Willow © Tom Cuffe



Garden Tiger Moth © Brian Nelson





Bullfinch enjoying blackberries © www.irishgardenbirds.ie



Bramble

Often under-appreciated, or indeed hated, as a thorny, troublesome plant that trips you up on a country walk, **Bramble** provides vital food for pollinating insects in late summer, and berries for birds and mammals in autumn.

Perhaps a corner of your garden could include a bramble patch? You can even clip it back each winter to keep your bramble zone contained. And you can enjoy the blackberries along with the hungry birds in autumn!



Clover

Did you know Clover used to be called 'bee's bread'?

This is because it provides such important food - in its pollen and nectar stores - for bees.



Ivy

Ivy provides good cover for nesting birds, and also hibernating butterflies.

Late flowering, in autumn, makes Ivy very important for Bumblebee queens who need to put on weight before hibernation.

Ivy berries are very important to birds in late winter, when food is scarce.





1 For the Birds!

Leaving out food for garden birds is a great way to invite nature into your garden. Some people choose to feed only in winter, while others enjoy feeding their garden visitors all year round.

Tips for your garden restaurant:

- **HANG FEEDERS WITHIN VIEW OF A WINDOW:** This allows you the enjoyment of observing the birds who visit your feeders. It will also remind you to keep the feeders topped up!
- **KEEP TO REGULAR MEAL TIMES:** If you decide to feed your garden birds, make sure to fill your feeders at the same time every day as your birds may become dependant on this food source, especially in winter, and can waste valuable foraging hours waiting close to garden feeders for the food to appear.
- **KEEP FOOD FRESH:** Don't offer damp or mouldy food or bread.
- **KEEP OUT OF REACH OF KITTY!** If you have a cat or cats visit your garden, try to keep feeders about 1.5 metres above ground and away from shrubs where a cat may be able to hide.
- **KEEP THINGS CLEAN:** Feeders and bird baths must be washed regularly to avoid causing illness, undoing all your good work.





Starling



Great Tit

The menu

Peanuts will attract Blackbird, Blackcap, Blue Tit and Great Tit, Greenfinch, Chaffinch and Goldfinch.

Seed mixes attract Wood Pigeon, Collared Doves, tits and finches, such as Greenfinch.

Sunflower seeds will especially attract Bullfinch, Coal Tit, Greenfinch and House Sparrows.

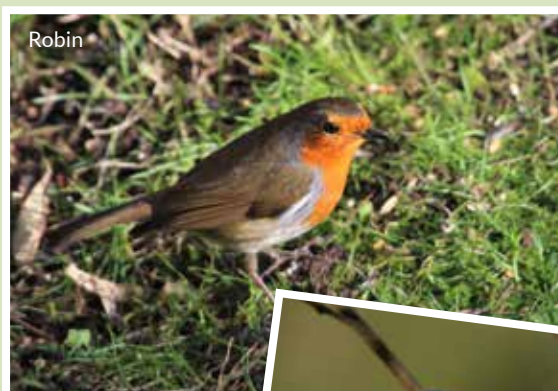
Coconut: Cut a coconut in half and drill a hole in the top and use string to hang downwards from a branch so it stays dry. Lots of different birds enjoy coconut.

Blackbirds, Thrushes, Robins and Dunnock prefer to feed from the ground or a **bird table**. You can use any of the commercial seed mixes/nuts, as well as mixed corn, flaked maize, cereals, rapeseed, or niger seed.

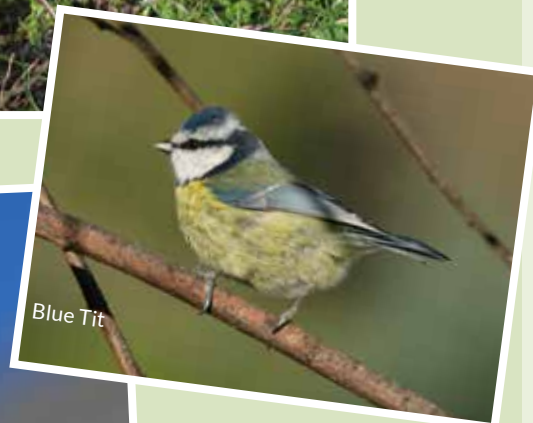
Not all kitchen scraps are suitable. Try porridge oats, cheese, baked potatoes, raisins, sultanas or apples. Avoid bread or desiccated coconut as both can swell up in the bird's stomach.



Goldfinch



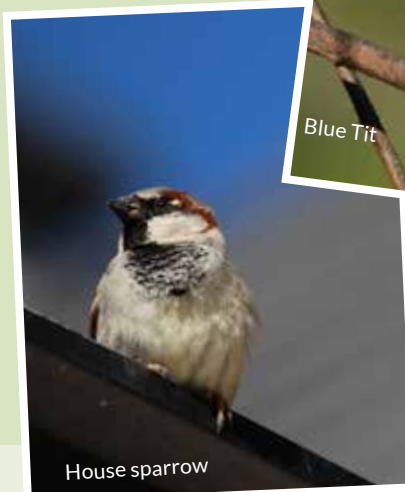
Robin



Blue Tit



Greenfinch



House sparrow





Bullfinch



Grow natural bird food

On top of offering food in bird feeders, you might like to take a look at what plants are growing in your garden and consider adding plants that provide natural food for birds.

Native Plants:

In addition to providing shelter for birds (and for native insects which birds can to feed on), these plants also offer food for birds as seeds or fruit:



Cotoneaster provides dense cover for nesting, and Blackbirds in particular love to eat the berries in winter.

Alder tree	seeds
Alder buckthorn	berries
Bird cherry	fruit
Crab apple	fruit
Blackthorn	berries
Elder	berries
Gelder rose	berries
Honeysuckle	berries
Rowan	berries
Spindle	fruit
Whitebeam	fruit
Wild Privet	fruit
Wild cherry	fruit
Yew	fruit



In autumn, Pyracantha produces berries that birds love.



Ivy provides good bird cover for nesting. Berries are eaten in late winter, when food is scarce, particularly favoured by Robin, Blackcap, and Thrushes.



Blackthorn sloes



Holly: For good fruit crops, plant the native variety and a male and female Holly close to each other.

Non-Native Plants:

Cotoneaster	berries
Evening primrose	seeds
<i>Mahonia aquifolium</i>	berries
Pyracantha	fruit
Sunflower	seeds
Wild cherry	Yew

Shelter

You can encourage birds to nest in your garden by offering suitable nesting sites, which include trees and hedges. Creeping plants on walls and tree trunks also offer excellent cover for nesting birds. The Treecreeper, Spotted Flycatcher, Wren and Song Thrush are all known to nest under the cover of ivy, clematis or honeysuckle.

If erecting nest boxes, place securely on a tall tree, as high as possible (2-5m from the ground), facing north-east, in a sheltered spot. Different nest boxes have different sized holes to suit particular species.

Tits and Wren use nest boxes with a small entrance hole, which mimic their natural nest holes in trees.

Robins will use these openfronted nest boxes or may choose a ledge in a garage or shed.





House Martin www.irishgardenbirds.ie

Learning to share your home

Some people don't welcome birds that nest on their house, but please reconsider the beautiful House Martin and think about how far it has travelled to get to your home!

Each summer, House Martins fly 10,000km all the way from South Africa to rear their young in Ireland, so perhaps we can overlook some droppings around footpaths and instead enjoy the wonderful display they put on each evening as they soar and swoop, picking off midges and other flying insects.

House martins make their nests using mud they collect from nearby puddles and streams. They are master craftsmen! If we have a particularly dry spring, you can help these birds by leaving out a bowl of mud (using soil and water) as building supplies for their nests. But you might also want to save them this hard work by offering them a nest box designed especially for them.

House Martins tend to nest in small colonies, so it's best to erect a number of these nest boxes under your eaves. This might also be a good idea if you want to direct them towards using a certain wall of your home or garage - and that way prevent droppings collecting on certain pathways.



Another good idea is to erect a 'poop catcher' - a wooden shelf under nesting areas.



Air B&B for Swifts

Swifts spend most of their lives on the wing, only landing to raise their young each summer - at nest sites on tall trees, cliff faces and within the walls of buildings. Swifts eat, sleep and mate in flight.

Unfortunately, nesting sites for Swifts have become more scarce as our building techniques have changed and new buildings now have few crevices and entrances for these birds.

Renovations to older buildings also removes potential nesting sites. It's very sad to see Swifts return to a nest site they may have used for many years only to find it has been blocked up through renovations. They are very site-faithful birds and they will keep trying to enter the now non-existent nest-hole.

It's important to note that Swifts are colonial nesters, so it isn't simply a case of putting up a nest box and hoping it will be found and occupied. If your building is already home to Swifts, then you can add nest boxes and swifts will welcome this new accommodation. But if you don't already have annual swift visitors, attracting Swifts to new nest sites is complicated. Putting up a nest box won't be enough. Sometimes playing recordings of swift calls is required, so it's best to seek advice from a local swift expert.

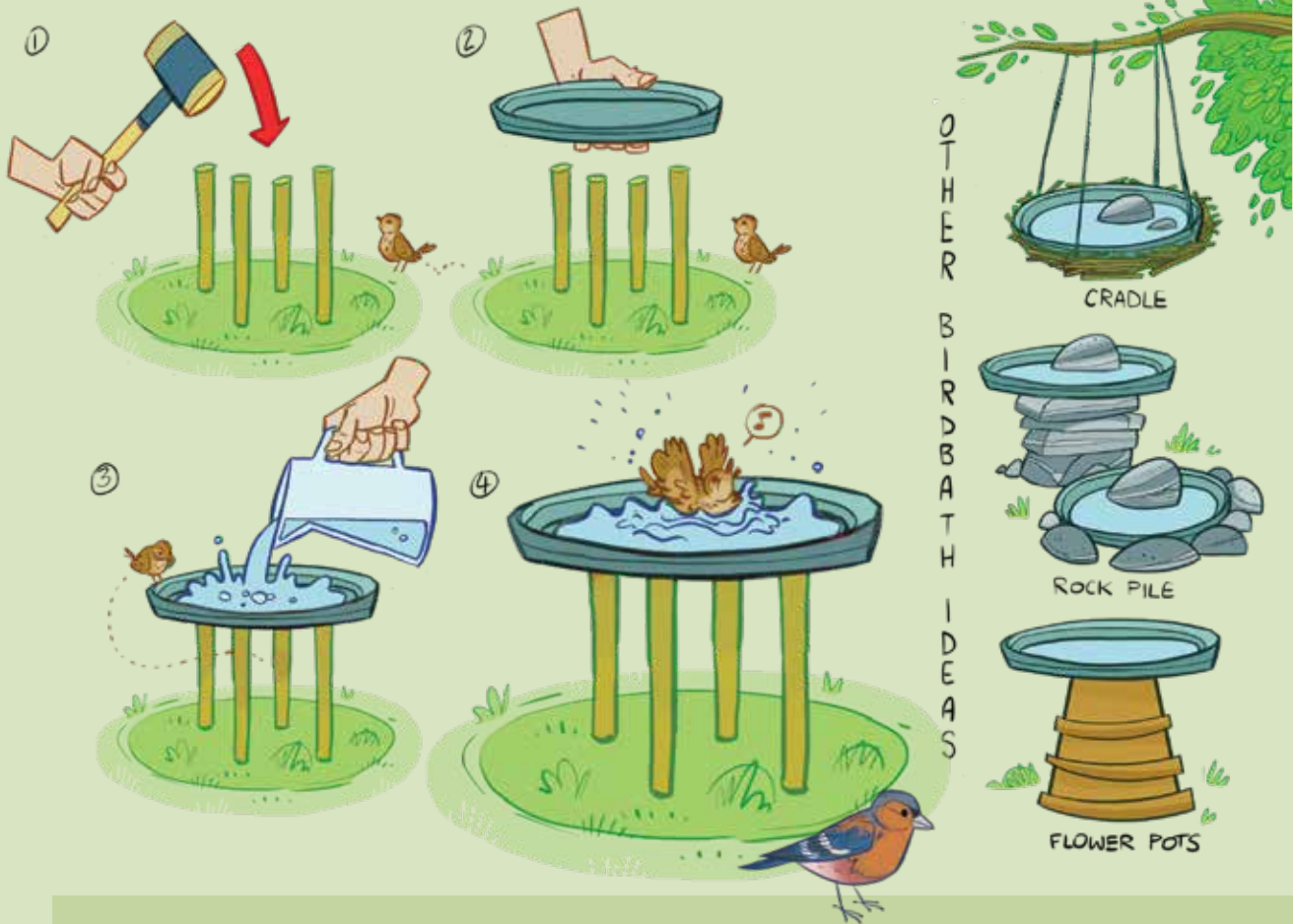
Swift Conservation Ireland or your local branch of BirdWatch Ireland will be able to offer the best advice. The Heritage Officer Network worked with BirdWatch Ireland to produce a wonderful booklet on how to help swifts. Download here: <http://laois.ie/publications/heritage-publications/>



Water

Living in such a rainy country, we often overlook the importance of supplying a water source for birds in our gardens, but in dry or cold weather, a bird bath will have a hugely positive impact for local birds - by offering both drinking water and a bathing area.

Think of the amount of land drainage that has occurred across the countryside in recent decades. There are less natural ponds and field ditches to offer water for birds, so including a bird bath will make your garden much more attractive to birds. And of course, a bird bath will also offer you lots of enjoyment, too, as you can observe the antics of your garden visitors.



Why not record your garden birds?

BirdWatch Ireland runs the Garden Bird Survey, which provides vital information on the health of our garden bird populations.

Between December and February, you note the number of each bird species visiting the garden every week, the kinds of food, if any, being offered and so on. Taking part is fun, easy and an ideal way to get to know your garden birds better; it also makes a great school project. You can also find out more ways to help birds and how to build your own nest box at: www.birdwatchireland.ie



2

A wildlife lawn / wildflower patch



A tightly mown lawn is like a desert for pollinators. The land on the right of the wall above is simply a result of reduced mowing.

In Ireland, we have 99 bee species - one honeybee, 21 bumblebees, and 77 solitary bee species. Contrary to popular belief, it is actually our wild bees (not honeybees) that are responsible for most pollination. Unfortunately one-third of our 98 wild bee species are at risk of extinction. This is because we have drastically reduced the amount of food (flowers) and safe nesting sites in our landscapes.

We have reduced the availability of wildflowers on farmland, roadsides, in parks and gardens, through mowing and the use of herbicides. Bees rely solely on pollen and nectar from flowers for food, so when we 'tidy up' our gardens and farmland, we remove their food sources. We remove safe nesting sites by spraying pesticides.

The good news is that every garden, no matter its size, can be a haven for hungry pollinators. In addition to pollinating our crops, pollinators benefit 78% of our flowering wildflowers and trees, which provide fruits and seed for birds and mammals. In helping pollinators in our gardens, we are helping Irish farmers and future generations who will also rely on pollinating insects for food production and for healthy ecosystems.



Create a flower-rich 6-week meadow:

- First cut after 15th April (this will allow Dandelions to flower. Dandelions are a vital food source for pollinators in spring)
- Second cut at end of May (Cutting at the end of May and not again until mid-late July will increase the growth of important plants like Clover, Selfheal, Cuckoo flower and Bird's-foot-trefoil.)
- Third cut in mid-late July (maximises growth of Clovers and other wildflowers)
- Fourth cut end August
- Fifth cut after mid-October

*It is really important to **remove clippings** after each cut. Wildflowers grow best in infertile soil. Removing clippings will help to reduce soil fertility so that wildflowers can compete with grasses.

More bees => More plants => More biodiversity





A wildflower strip along the edge of your lawn means there is still lots of room for sports and play.



A 'summer swirl' for bees - some wildlife gardeners are getting creative, mowing shapes of clover and other wildflowers into their lawns.



Natural regeneration of wildflowers from the existing seed bank is much better for biodiversity than planting commercial wildflower seed mixes.

6-spot-Burnet, a day-flying moth



Knapweed is a super plant for pollinators. It is found on roadsides, rough grass and hedgerow banks. If you can collect seed in autumn, this is a great plant to grow up in a pot to add to your wildflower area. Finches will also enjoy the seeds in autumn.

Making a meadow

If you want to develop a wildflower patch in part of your garden, you will be interested to learn about a very special plant called 'Yellow Rattle'. It gets its name because its seeds rattle in their cases when you shake the flower head.



Yellow Rattle

It is also called the 'meadow maker' because it's an annual that is partly parasitic on grass and weakens grasses. This helps other wildflowers to grow because if you have too much grass, it dominates, and you have a monoculture and the wildflowers disappear and they can't come back. But if you sow yellow rattle, all the other wildflowers will follow in its wake.

NOTE: If you want to plant wildflowers, it is always advisable to use native seed of local provenance. Or why not collect your own local wildflower seed and cultivate in seed trays before adding to your garden?

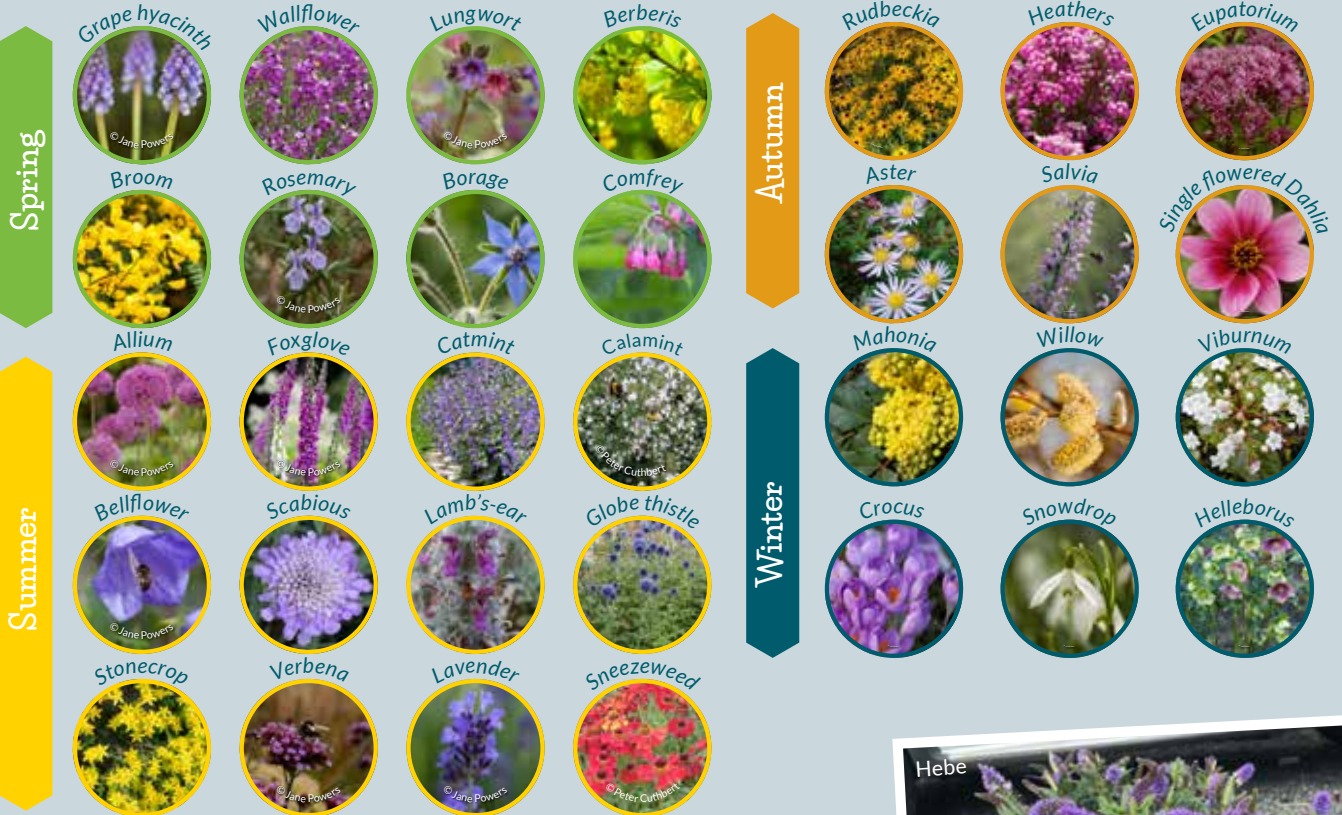
www.pollinators.ie offers a How-to-guide that explains how to do this.



3

For the butterflies & bees: Planting for pollinators

You can help pollinating insects and still have a beautiful garden, as there is a wonderful array of pollinator-friendly flowers to choose from, which will provide both colour and food for pollinators throughout the year. The key to creating a pollinator-friendly garden is to try to provide pollen-rich flowers from spring right through to autumn.



NOTE: Buddleia or the 'Butterfly Bush' is a popular plant with wildlife gardeners, but care should be taken with Buddleias as some are invasive. *Buddleia globosa* is good for pollinators and does not spread.

Another great alternative is Hebe, which comes in different colours and attracts masses of butterflies.

Daffodils, Tulips, and traditional bedding plants like Geraniums, Begonias, Busy Lizzy, Petunias, Polyanthus or *Salvia splendens* have virtually no pollen and nectar and are of little value to pollinators.



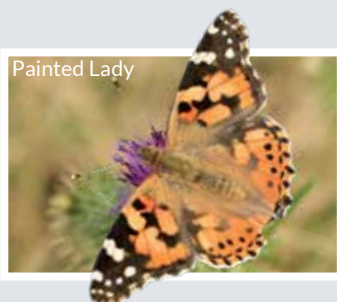
Create a butterfly border

Your butterfly border will look pretty and colourful as well as offering food for lots of pollinators. You might also consider including native plants for butterflies. Think about how often you saw caterpillars in your youth – including ‘hairy mollies’ - crossing footpaths or

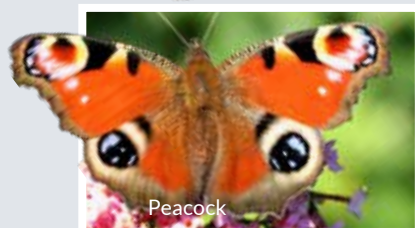
climbing walls? This has become a much less frequent sight in gardens in recent years, and it's because we have made our gardens more sterile, with tightly mown lawns, with less diversity, through the use of fertilisers and pesticides. A garden without their natural foods is no place for caterpillars.



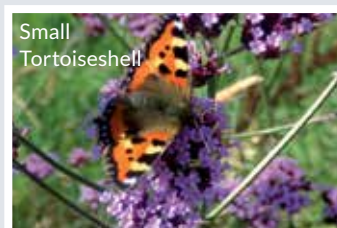
Common Blue butterfly



Painted Lady



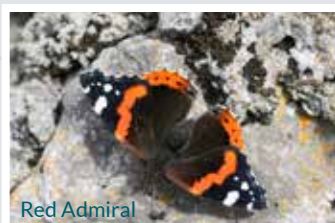
Peacock



Small Tortoiseshell



Orange Tip



Red Admiral



Large White



If you don't have a garden, you can still create a pollinator-friendly pot or window box.

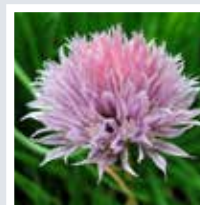
Grow some herbs

A herb bed or a herb border can be used as 'Edible landscaping' – I love this idea. This term can also be used to describe a fruit border with fruiting plants that helps to separate different parts of your garden.

Angelica



Chives



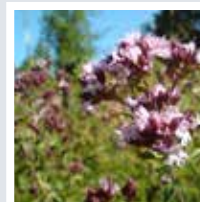
Fennel



Mint



Oregano



Rosemary



Sage



Summer & Winter Savoury



Thyme



Grow your own

Growing your own fruits and vegetables will provide flowering plants for pollinators to feed on and you'll reap the rewards later in the year.



Fruit trees are a great idea for any garden as you can get dwarf varieties, climbers or large trees, depending on your space, and you'll enjoy the rewards as much as the pollinators and birds. If you would like to plant Irish heritage varieties, contact <http://www.irishseedsavers.ie>



Heathers are a great option for any garden. As well as offering food for pollinators, they will become home to lots of native insects.



The All-Ireland Pollinator Plan is about all of us coming together to try to reverse declines in our pollinating insects. You will find lots of resources, videos and tips online at www.pollinators.ie – written specifically for different sectors, such as schools, local community groups, farmers, businesses and councils.

Why not add your garden to the growing number of pollinator-friendly sites being mapped on the Pollinator Plan's mapping system, <https://pollinators.biodiversityireland.ie> - which hit 1,000 sites in 2019.



Create nesting sites for mining bees

Ireland is home to 62 species of mining solitary bees. Unlike bumblebees or honeybees, solitary bees don't live in colonies. After mating, the female finds a suitable nesting site and makes a tunnel in a south or east-facing bank of bare earth. She then lays an egg inside the tunnel and leaves a supply of pollen, seals the chamber and repeats this process until she has laid 15-20 eggs. Then she seals the nest and leaves. All the male and female adults die off in autumn, while the larvae overwinter and emerge the following spring.



Andrena cineraria, Donna Rainey



While bee hotels are popular, you will be helping many more species, with more success, if you create a 'bee bank' for mining bees

Bare soil on a south or east-facing bank is the ideal nesting site for our mining solitary bees. You can easily create this by simply removing vegetation - and the bees will find it.

Cavity-nesting solitary bees

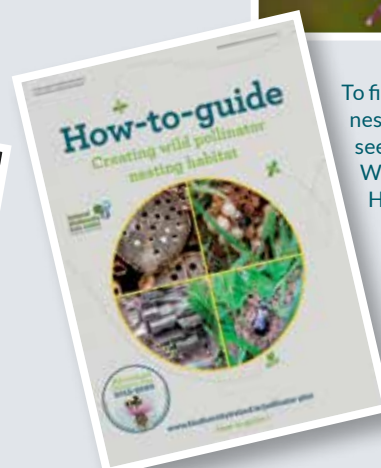
In Ireland, we have 15 species of cavity-nesting solitary bees, which nest in existing cavities in wood or masonry.

Only 10 of our cavity-nesting species will use 'bee hotels'. If you would like to include some homes for these bees in your garden, bee hotels come in lots of different designs, but you can also make your own by drilling holes in wood or using bamboo or cardboard tubes.

TIPS:

- Small is better - larger bug hotels are more susceptible to predation and disease. It is better to put up a number of small bee hotels rather than just one large one.
- Place a bee hotel in a sunny, dry spot, 1.5-2m above the ground, facing south or southeast.
- Protect nest sites. You will only see solitary bees for 6-8 weeks each year. But outside this time, the bees are developing or hibernating inside the nest, so it's very important not to disturb nest sites at any time during the year.

It is important to note that both solitary bees and bumblebees are very passive - they are only interested in gathering pollen so it is very unlikely they will ever sting, so attracting them to your garden poses little threat.



To find out more about creating nesting habitat for solitary bees, see the 'How-to-guide: Creating Wild Pollinator Nesting Habitat' at pollinators.ie

4

Leave an 'untidy' corner of your garden for wildlife

Leaving an untidy/wild corner of your garden - for nettles, bramble and ivy - is a great idea for lots of biodiversity.

You might consider keeping leaf litter - or raking it into a pile in your 'wild corner' for wildlife. Over the winter months, moth and butterfly larvae - as pupa or caterpillar - are often found in leaf litter. By dumping it, you are raking up a whole generation of these insects, and also affecting the diet the birds that rely on those insects for food.



Caterpillar Menu:



Butterfly sp.	Main food plant
Red Admiral	Stinging Nettle
Small Tortoiseshell	Stinging Nettle
Peacock	Stinging Nettle
Comma	Stinging Nettle
Painted Lady	Stinging Nettle & Thistles
Small White	Brassicas
Large White	Brassicas
Green-veined White	Brassicas
Holly Blue	Holly
Orange Tip	Lady's Smock

The wonderful world of nettles

Stinging nettle is the food plant for lots of butterfly caterpillars. If we want to have these beautiful butterflies as adults, they need nettles as their baby food!

The common nettle is the food plant for Small Tortoiseshell (below), Red Admiral, Comma and Peacock butterflies.



5

Make a log pile for mini-beasts



At a minimum excavate a hole 50cm deep and 150cm wide.

Pipes can be added to allow animals to crawl underneath the log pile (sand down the insides of the tubes to allow small animals to grip when climbing)

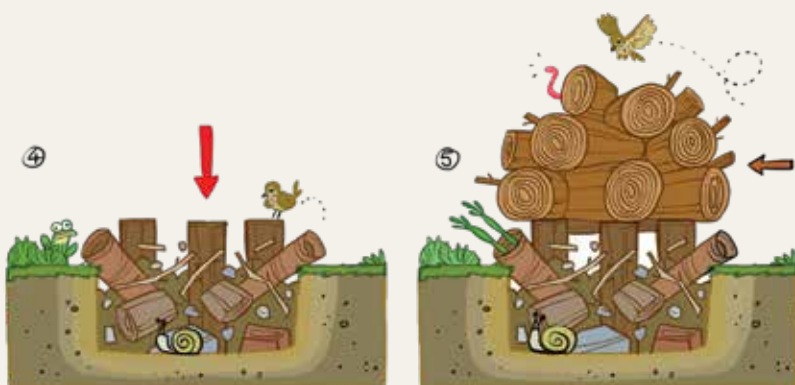
Tips to get the most from your log pile:

- Place it near other wildlife features, such as a hedgerow, tree, pond, or bird bath, to help create a wildlife corridor in your garden.
- If placed near a pond, a log pile may be used as a hibernation site and shelter for amphibians.
- By carefully stacking logs, drier habitats are created towards the top of the pile, giving a variety of habitat types for insects.
- A shaded north-facing spot is good as it mimics the shaded environment of the woodland floor.
- A quiet corner, away from games and activities will be more attractive to wildlife.
- Avoid locating your log pile too close to healthy trees and shrubs in case it causes a spread of fungi.
- In general, the bigger the log pile, the better. This will allow more room for wildlife inside and it will stay warmer in winter.
- Use a mix of logs from native species, such as Scots pine, oak, birch and rowan. Leave the bark on the wood.
- A local woodland manager or tree surgeon may help you source suitable wood. Don't remove fallen wood from forests as it is providing an important home for wildlife there, too.

Log piles also provide shelter for small mammals, hibernating amphibians, and insects, and of course the resident grubs, insects and worms provide food for birds. A variety of interesting fungi will also move in, and within a year or two, a whole wildlife community will have assembled in your log pile.



Making a log pile for invertebrates and fungi that rely on dead and decaying wood is a great way to help biodiversity. Dead wood and fallen trees are natural features of woodlands and by creating this habitat in a corner of your garden, you will recreate this mini-ecosystem.



- At the base, bury some logs upright under the soil as this will attract underground hibernators.
- Then stack large logs towards the centre, with smaller ones on top and around sides.
- You might like to add leaf litter in autumn or a pile nearby to attract hedgehogs and frogs looking for good hibernation sites.
- Then simply leave your log pile alone and the wildlife will come!



Fungi Diversity

Your log pile area may be colonised by dead wood-loving fungi, while other varieties will show up in autumn in longer grass where you may be cultivating wildflowers for pollinators earlier.



Dry stone walls & rockeries

In some gardens, dry stone walls may feature, especially in the west of the country, and can form their own micro-habitats for nature. The crevices and nooks between the stones offer growing space for Hart's-tongue-fern and Maidenhair Fern, Herb Robert, Cranesbills, and a variety of mosses and lichens.

The cavities are home to myriad insects and offer nesting sites for cavity-nesting solitary bees. A stone wall may also form a perfect habitat for our only native reptile, the Common or Viviparous Lizard, which likes to bask on rocks and will hunt for insects among the stones.

You could create a simple replica of a dry stone wall habitat in any garden by creating a small rockery or a low wall to separate parts of your garden. Even a small pile of rocks will create a micro-habitat for some species.

If you choose to do a dry stone wall, you could add a mixture of soil and compost between some stones and add in seed collected locally from wall-loving wildflowers, such as Herb Robert or Lady's Bedstraw. A stone wall will also offer a great backdrop for foxgloves, wallflowers or sunflowers that will benefit from the shelter provided.



Our only native reptile, the Common Lizard, likes to bask on rocks.



Dead nettle will thrive at the base of a wall or rockery and is a great spring source of pollen and nectar. The great thing about our wild plants is they are hardy and will grow anywhere they can!

Lichens are an often forgotten component of garden biodiversity. These intriguing organisms are the result of a symbiotic relationship between a fungus, alga and bacteria, so they are really three organisms in one! There will be lots of different types of lichen in your garden, on walls, the branches and bark of trees, on plant pots, and on window sills and fencing.



6

Plant native trees



Planting native trees is an excellent way to help biodiversity and help our climate at the same time! There is a tree to suit every size of garden. Do your research and choose your trees carefully according to the size and location of your garden. 'Crown spread' and eventual height are important to know - if you have a very small space, look for small crown spread and moderate height.

For wildlife gardens, it's always best to try to plant native species as it is our native trees that our insects have adapted to live with and use as a home. If you have a large rural garden, you may even have room for a mini-native woodland. Whether you can plant one native tree, five or 20, it all counts!

Common Alder, Hazel or **Hawthorn** are all lovely trees and are suitable for coppicing every few years if you want to reduce their size, and they will grow new branches and young shoots.



Hawthorn/Whitethorn

Hawthorn/Whitethorn is also called the 'Maybush' because of its beautiful display of blossoms each May. It is a common hedgerow species, but can also be grown as an individual tree - a very wildlife-friendly option for any garden, producing red haws in autumn.

Blackthorn provides a home for over 100 insect species. Related to cherries and plums, the fruit of the blackthorn resemble small plums and are enjoyed by lots of animals, including wood mice, finches and foxes.



A society grows great when old men plant trees whose shade they know they shall never sit in

- Greek proverb

There are two native Irish Birch trees, the **Downy Birch** and the **Silver Birch**. Downy Birch is more common and it is a fast-growing tree.

Birch can be recognised by its silver-white peeling bark. The silver birch's bark is whiter and it has more pointed, less hairy leaves than the downy birch. The main wildlife value of Birch is its growth of seed-rich yellow-brown catkins in spring, which attract birds.



Hazel is a small native tree or shrub that produces edible hazelnuts in autumn for mammals and birds. It can be found growing in woodland and hedgerows all over Ireland.

In folklore, the 'Salmon of Knowledge', which was eaten by Fionn MacCumhaill, fed on the nuts of the seven hazels of wisdom on the Boyne.



Spindle is a small, pretty native tree. The wood is very hard and can be shaped without chipping, so it was used for making small items such as spindles and pegs, hence its name.

Spindle flowers provides lots of food for pollinators in summer, as well as berries for birds in autumn and early winter, when other food can be scarce. It produces bright pink capsules containing orange seeds in late autumn and early winter, and its leaves turn an attractive scarlet colour.





Rowan provides lots of flowers for bees and later in the year, berries for birds. Thrushes are particularly fond of rowan berries.

Rowan is also known as the Mountain Ash as it has similar leaves to the ash tree. It is a very attractive tree, with white flower clusters in spring and red berries in autumn, and its leaves turn a lovely red-orange colour before they fall.



Oak is Ireland's national tree and its ability to sustain biodiversity makes it hugely important to our wildlife. It supports over 200 different species and can live for 1,000 years.

While it may be too large for most gardens - growing up to 40m in height - perhaps there is room in a school garden or GAA pitch, hospital, or business grounds for such an important tree.

Holly is a very resilient tree and can tolerate browsing by animals or coppicing by humans. Female trees bear the bright red berries in winter (not all trees will have berries as there are separate male and female trees). For a good crop of berries you should plant both a male and female tree close together.



There are 12 or more Willow species that are believed to be native to Ireland. Willow supports a greater range of wildlife than any other Irish tree. It has been estimated that it can support 250 insect species and over 100 lichens. Goat or Grey willows are wonderful plants for pollinators as they provide lots of pollen and nectar in their tiny flowers in early spring when there is little else in flower. Willows can be grown easily from cuttings.



Holly is the food plant of the Holly Blue butterfly caterpillar.



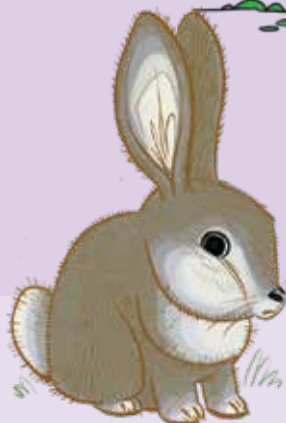
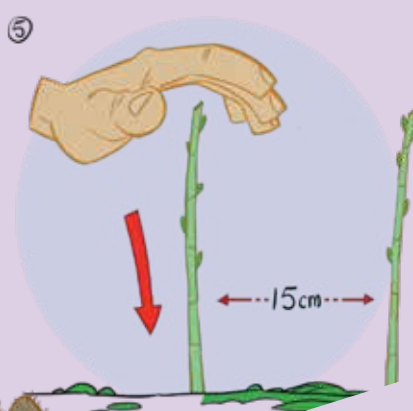
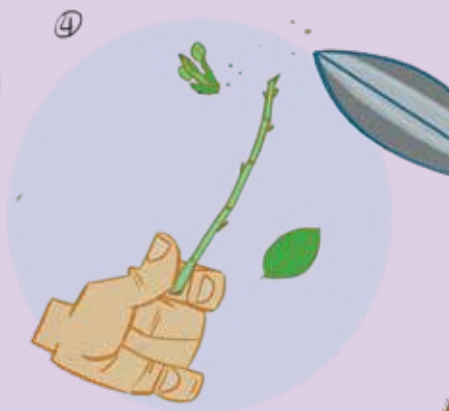
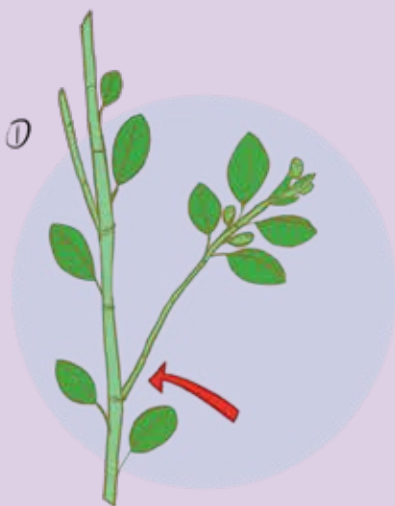
Woodland Trust

The Native Woodland Trust is a charity dedicated to the preservation of Ireland's remaining ancient woodlands. It is also committed to the restoration of Ireland's original climax ecosystem, through the re-creation of woodlands using only native seed. For tips on sourcing and planting native trees, see www.nativewoodlandtrust.ie



How to grow Willow from cuttings

- 1 Choose young shoots with vigorous growth, about 1-2cm in diameter
- 2 Cut the stem just above and below two nodes to produce a cutting about 20cm long.
- 3 If you use a sloping cut on top, this will help you to recognise the top.
- 4 Remove leaves. Cuttings can be stored for a few weeks by keeping moist or can be planted out straight away.
- 5 Then simply push into a pot of soil or straight into the ground. Place 15cm apart and leave two or three buds above the soil surface.
- 6 Moisture is very important to willows so water regularly. Cuttings grow on well, and you could have a 1-metre tall plant the following year.



7

Native hedgerows

One of the best ways we can help wildlife in Ireland is to protect or plant native hedgerows. Our native hedgerows provide food, shelter and a natural corridor for wildlife moving across the countryside.

If your garden is already surrounded by a non-native hedge, but you want to plant a native hedgerow, you could keep your old hedge and plant a new line of native shrubs alongside the old boundary. This provides double the cover for nesting birds, as well as introducing a food source and a more natural habitat for our insects and birds, without removing your privacy and shelter until the new hedgerow develops.



The Hawthorn Shieldbug, just one of 100 insects adapted to life in the Hawthorn.



Wild roses and the resulting rosehips in autumn



Wild Cherry



Elder



Blackthorn

Intensively managed hedgerows are not traditional features of the Irish countryside and are a recent phenomenon due to the availability of heavy machinery. This overmanagement removes food and safe nesting sites for biodiversity.



Characteristics of a biodiversity-friendly hedge:

- **Contains a mix of native trees/shrubs that are allowed to flower each spring.** This offers food for pollinating insects and these pollinators ensure fruit production on the hedgerow in autumn for birds and mammals.



No flowers = no fruit for other wildlife.

- The ideal mix is **75% Whitethorn** and 25% of at least four other species, including Blackthorn.
- Cut every two or three years or allow to grow and side-trim only.
- A **2m border** at base of hedgerow that is not sprayed with chemicals - to encourage wildflowers and offer safe nesting sites for insects and small mammals.

Crab apple trees are common in old native hedgerows. Blackcaps and Thrushes love the small fruits, and the flowers make them very attractive to gardeners as well as pollinating insects. If you have other apple trees, you might consider adding a crab apple tree - which acts as an invaluable pollinating partner for your other apple trees, boosting their fruit production.

8

The 'Long Acre' - Let your road verge grow naturally

Road verges have long acted as a refuge for our native plants - an area unsprayed and uncultivated in an otherwise managed landscape. While road verges in suburbs were traditionally mown, this wasn't the case outside of our towns and villages until quite recently.

However, there seems to be a growing trend in rural areas to mow the verge outside your garden, to create a neat roadside. Unfortunately yet again this means removing areas for nature, and should be discouraged. If you want to keep your verge mowed for walkers, why not mow just a one-metre-wide strip and leave the rest of the verge for the wildflowers.



The native bluebell is under threat - due to competition and hybridisation - from the invasive Spanish bluebell. If you want to grow bluebells, make sure to source from reputable suppliers of native plants or collect seed locally. Never dig/ remove bluebells from native woodlands. They are doing an important job where they are already growing!



Lesser celandine, a flower of woodlands, can also be seen on roadsides in early spring.



A lacy wildflower characteristic of late spring - Cow Parsley's white umbrels feed lots of pollinating insects such as hoverflies.

It is a joy to watch bees crawling up inside the tubular flowers of Foxglove, a common roadside flower in some counties. Foxgloves only flower every two years, but if you can collect seed and replant in pots, you can develop a foxglove patch in your garden that will bloom each year.



9

For the love of Bats

A garden that is insect-friendly will also be good for bats. Irish bats eat only insects and spiders. A lot of energy is used in flight so bats must eat a lot! The tiny Common Pipistrelle Bat eats about 3,000 midges and other small flies in a single night.

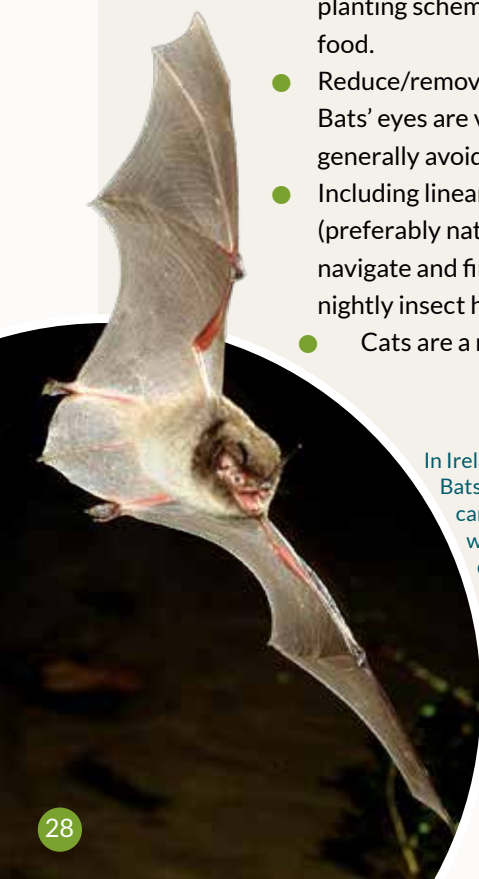
Gardening for Bats:

Different plants attract different insects. By planting a good variety of flowers, vegetables, shrubs and trees you will encourage lots of different insect types to visit your garden between spring and autumn.

- Plant night-flowering/scented blossoms to attract night-flying insects. There are some useful hybrids or exotics you may want to consider planting. Jasmine and Night-scented stock release scent after dark, while Aubretia, Candytuft, Cherry pie, Echinacea, Honesty, Michaelmas Daisy, Phacelia, Red Valerian, Verbena, and wallflowers will also attract lots of insects.
- Pale flowers attract insects at dusk so it is a good idea to include pale colours in your planting schemes if you want to attract bat food.
- Reduce/remove artificial lighting after dark. Bats' eyes are very light-sensitive so they will generally avoid bright lights.
- Including linear features, such as a hedge (preferably native) or tree line will help bats navigate and find your garden during their nightly insect hunt.
- Cats are a major problem for bats that

roost in a garage attic or hunt in gardens. In fact, you could save other wildlife, too, by bringing your cat indoors half an hour before sunset every night and keeping them indoors until daylight.

- Trees provide roosting opportunities for bats. If your area doesn't have much woodland, you may like to try erecting a bat box on a tree in your garden.
- A small pond or wetland area in your garden will provide even more insects for bats to feed on. A pond also provides bats with somewhere to drink - they fly very low over the pond to drink in flight.
- A log pile makes an ideal spot for insects, especially beetles, which are also eaten by bats.
- Avoid pesticides - which reduce bats' insect prey.



In Ireland, we have nine different bat species. Bats are amazing intelligent animals that can live for over 30 years. It is enjoyable to watch them swooping through the sky at dusk in your garden, picking off midges and moths.

Daubenton's Bat © Frank Greenway



Red Valerian is a night-scented flower, which is quite hardy as can be seen here.



*You will know if bats have taken up residence as there will be bat droppings on the ground under the box.

Tips on erecting a bat box:

- Bat boxes should be put close to hedgerows or lines of trees as these are used as flight corridors by bats.
- Boxes should be fastened securely on the tree, in a sunny spot as high as possible from the ground - at least 4-5metres.
- Boxes should be sheltered from strong winds and exposed to sun for some of the day (usually S/SW).
- If possible, site three bat boxes facing north, south-west, and south-east. This will allow bats to choose the most suitable roost for the particular time of year. For example, in summer they may choose a cooler spot to roost, and in autumn a warmer one.

The bats you are most likely to have using your garden are the Pipistrelles (Common Pipistrelle or Soprano Pipistrelle) and the Brown Long-eared Bat.

Pipistrelles emerge around sunset so you may see these on the wing. They have an erratic flight pattern - turning and twisting often around trees, hedges, buildings and streetlights as they hunt insects.

The Brown Long-eared Bat emerges from their roost after dark. Their flight is slow and hovering.



Soprano Pipistrelle Bat © Tina Aughney



Brown Longeared Bat © Faith Wilson

Bat Conservation Ireland

Bat Conservation Ireland has lots of information and useful resources including a guide on how to build your own bat box. They also run bat walks and can show you how to use a Bat Detector- a special audio device to identify the calls of various species so you can identify the bats flying over your garden at night. See www.batconservationireland.org





The truth about bats:

In case it is still important to dispel some myths about bats, so that you can happily welcome them into your garden or attic, please read on...

- Bats are not rodents and are more closely related to humans than they are to mice or rats.
- Bats are not blind and will not fly into your hair!
- If they are found inside a house, they have entered by mistake, and by leaving windows open after dark and lights off, they will be able to find their way out again using echolocation.
- Bats are clean, sociable animals. They do not build nests and do not bring in food. Bat droppings are dry and because they are insect remains, they crumble away to a light dust, so they don't create a smell or mess. There are no known health risks associated with bat droppings.

- Bats do not gnaw at wires, insulation or wood.
- A female bat gives birth to just one baby each summer.
- If bats choose to roost in the attic of your house or garage, they will only be resident for a few months either in summer or winter.



Moths

Some moth species are also important night-time pollinators, and they drink the nectar of flowers just like butterflies. But while we have just 32 species of butterfly in Ireland, there is a much greater diversity of moths - some 1,200 species - many of which are absolutely beautiful.

To attract these night-time pollinators, include night-scented flowers, such as Honeysuckle or Evening Primrose, in your garden

Honeysuckle, as well as attracting moths, provides berries for birds, especially thrushes and warblers.



In encouraging moths, of course, you're also helping bats, as they are a very important food source for our bats, while their caterpillar stages and day-flying species, which also visit flowers, will be important food for birds.

White Prominent moth



Green Silver Lines moth



Eyed Hawk moth



Elephant Hawk moth



Common White Wave moth



Early Great moth



Moth images © Brian Nelson

Other mammal visitors

Depending on where you live, your garden could be visited by a range of mammal species, including hedgehogs, squirrels, badgers and even deer. Most gardens will be home to small mammals such as the pygmy shrew or wood mouse - a much prettier cousin of the house mouse!

Rabbits are also a common sight, especially in rural gardens, while foxes are doing very well in urban areas, and sometimes make their den under a garden shed or decking.

The key to attracting mammals is accessibility. If you've already planted insect/bird-friendly plants, you've probably created lots of food for mammals too, so then you might want to question whether your garden is accessible to mammals? In order to allow hedgehogs and other small mammals to travel between gardens, cut a small hole at the base of garden fences.



The wood mouse is a different species to the house mouse who prefers indoors living. Like squirrels, wood mice hide nuts for winter



Squirrels are masters at raiding food left out for birds, but some gardeners are quite happy to feed the squirrels as well, by erecting these special squirrel feeders.



If a Hedgehog visits your garden, please do not offer it bread and milk, as this causes severe stomach problems for hedgehogs. Tinned cat food and water is a much better idea.



Pet cats are often a major predator of small mammals. It is best to keep cats indoors at night and try a pet collar with a bell to give vulnerable mammals and birds a warning.

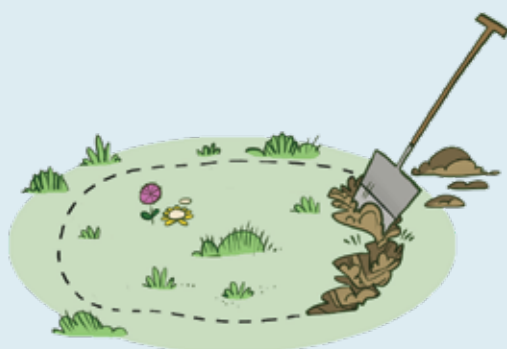


10 Create a Wetland area



Making a Wildlife Pond

One of the best wildlife features you can add to any garden is a pond. This offers a source of drinking water as well as a home for lots of biodiversity. And the good news is that your pond doesn't have to be very large. In fact, even a sunken bath tub or basin can create a water habitat for wildlife, so no garden is too small for a pond.



- 1** Using string or sand, mark out the shape of your pond and start digging! It may be useful to calculate the approximate volume of soil you are removing in advance so you can make a plan for this (Width x Height x Depth). The removed soil might make a nice south/east-facing bee bank for mining bees elsewhere in your garden.



- 2** Your pond will soon attract lots of freshwater insects, amphibians, birds, mammals and lots of small invertebrates. Remember to include a shallow area and some rocks so that birds and mammals can visit and take a drink. Remove large roots and stones to protect the liner. Line the base of the hole with sand. You could also add old pieces of carpet under your liner for added protection.



- 3** Line the hole with thick butyl pond liner (the thickest you can get!). If you plan to create a 'bog garden' on the edge of your pond, extend the liner so that it will line this other habitat.



- 4** Place large rocks around the edge of the liner to prevent it slipping while you work.





- 5** Add another layer of heavy sand on top of liner.



- 6** Fill the pond with water from a garden hose or your rainwater butt. Rainwater is best - especially for topping up your pond (using tap water can turn your pond green).



- 7** Include oxygenating plants such as hornwort. A plant to cover the surface such as Water Lily and emerging plants such as Marsh Marigold. If you get the plants right, you won't need a pump, which can suck up the tadpoles, for whom you are working so hard to create a home. You can plant marginal plants around the edges of your pond that will help attract more insects to the area.



Woundwort



Purple Loosestrife



- 8** Planting marginal plants will also make it easier for shy birds and amphibians to enter the area under cover. A small wooden ramp will prevent any small mammals from drowning if they fall in and can't climb out.

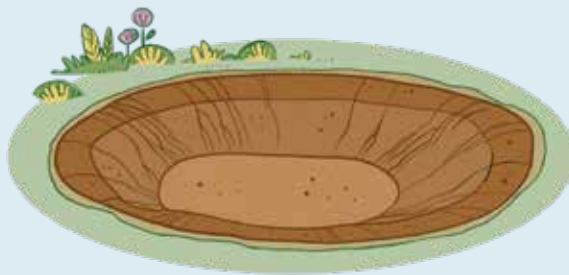
If you want your pond to attract wildlife, don't add fish as they will eat all the water creatures.



Make a Bog Garden



If I haven't convinced you to try a pond or if you believe a pond won't suit your garden, perhaps you might consider creating a 'bog garden' with wetland plants? Bog gardens provide lots of attractive planting options. This will provide an excellent site for biodiversity without going as far as an open water habitat. Or even if you already have a pond, a bog/rain garden is an added habitat you can place along its edge or as a separate garden feature away from the pond. A Bog Garden could be a perfect idea for a waterlogged dip in your lawn. Or if you want to repurpose an old leaky pond, or have old plastic sheeting to use, a bog garden is very easy to create.

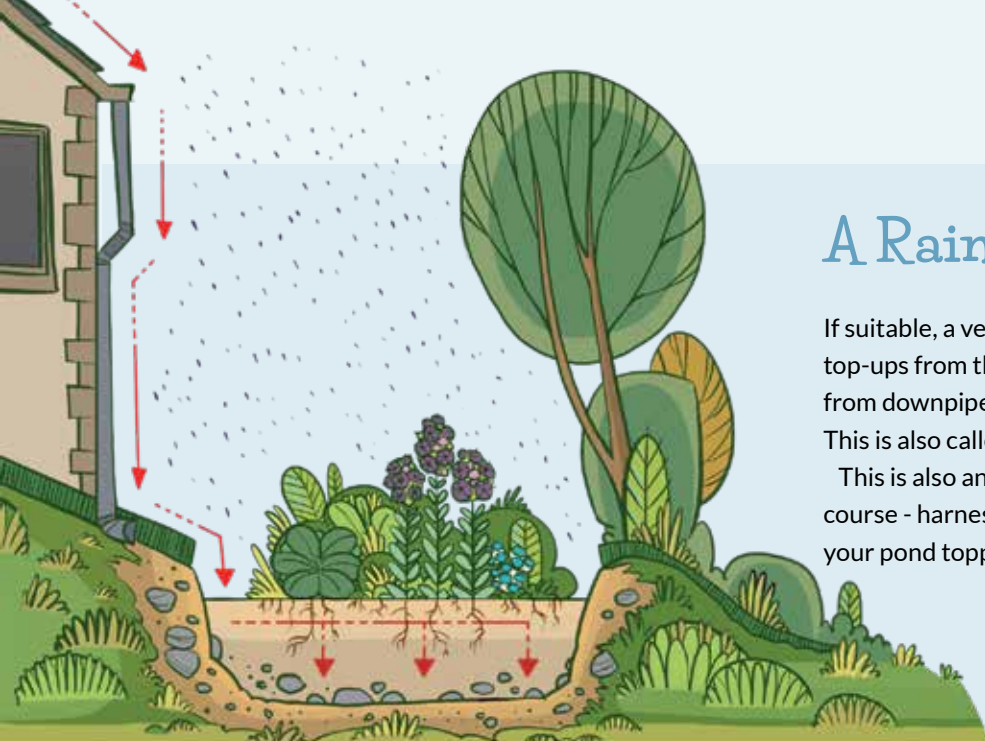


1 Spring is the best time to plant a bog garden. Mark out your chosen area with string or sand. Dig to a depth of 45cm (18in.)

2 Line the hole with butyl pond liner or polythene sheeting at least 0.5mm thick. Placing stones around the edge will stop it slipping as you work. Pierce the liner at 1m intervals with a garden fork. Cover the bottom with a length of leaky hosepipe or porous pipe and seal the end of the pipe. The other end of the hose should extend out of the bog garden to a water source, in case you need to top up with water in future. Cover the bottom with approx. 5cm of coarse gravel to allow some drainage - this allows water-logging but prevents pooling (and will also prevent soil blocking the holes in the hose).

3 Replace the excavated soil, removing any large stones that could pierce the liner. Bog plants like soil that is rich in organic matter. If the soil is very infertile, you could add in leaf mould, compost or well-rotted manure (this may be a good site for leaf litter you are trying to dispose of in winter - adding a layer of leaves each year when the plants have died back in your bog garden, will increase nutrient levels). The soil level will be higher than the surrounding ground at first, but will settle - don't compact too much as this makes it more difficult for plants to grow. Once the soil has settled, you're ready to start planting!





A Rain Garden

If suitable, a very efficient bog garden (that won't need top-ups from the garden hose) can be created using rain from downpipes from your roof, as in this illustration. This is also called a 'rain garden'.

This is also an option to fill a pond in this way, too, of course - harnessing rainwater from your roof to keep your pond topped up, via your downpipes.

Good **native** plants for pond margins or bog gardens include: Marsh Marigold, Purple Loosestrife; Yellow Flag/Iris; Hemp agrimony, Water Avens, Lady's Smock, Water Forget-Me-Not, Marsh Woundwort, Water Mint, Meadowsweet.

Some good **non-native** varieties for your bog garden include:

Primula japonica 'Miller's Crimson'; *Iris ensata*, Japanese water iris; *Matteuccia struthiopteris* AGM; *Rodgersia pinnata* 'Superba'; *Ligularia* 'Greygynog Gold'.



Bog Bean



Bugle



Creeping Jenny



Yellow Flag



Hemp Agrimony



Lady's Smock



Meadowsweet



Water Mint



Water Forget-Me-Not



Water Aven



Marsh Woundwort



Marsh Marigold



Marsh Mallow



Purple Loosestrife

Hooray for Hoverflies!

Bees are, of course, the top-performing pollinators, but did you know that Hoverflies come in second?

Not only that, but hoverfly larvae help with pest control - they are voracious predators of aphids. So hoverflies should be very welcome in all gardens! Your wetland area will become an important breeding site for hoverflies.



Some hoverflies are bumblebee mimics, like this one on the right, but the 'fly eyes' are the giveaway! Thistles provide lots of pollen and nectar for both of these important pollinators.

Pond Life



As we have successfully drained a lot of land in Ireland to make it suitable for agriculture or development, we have removed a lot of natural breeding ponds for frogs, newts, dragonflies, and countless water insects, so creating a pond can have a substantial positive effect on local amphibian populations.

If you want your pond to be wildlife-friendly, don't add fish! Fish would eat a lot of the native insects and tadpoles that colonise the habitat.

It is amazing to see your new pond quickly becoming inhabited by a range of wildlife. It may seem mysterious how each species finds your pond! For example, when pond snails and water boatmen suddenly showed up in my own wildlife pond very soon after excavation, I could only guess that they arrived as eggs on water plants or attached to the feet of waterbirds.

Our pond was quickly visited by Mallard, Snipe, Grey Heron and Dipper. Because we have dogs, these birds don't stay around too long, but it's nice to know they appreciate the new habitat on offer and no doubt have feasted on the myriad insects and tadpoles that are now thriving there. Despite not living near a river or stream, it only took one year for frogs to find our pond and leave their masses of frogspawn. Dragonflies and Damselflies arrived the following year, darting over the water surface and hovering over the water as they laid their eggs.

By uprooting a small number of Yellow Flag plants from a nearby ditch on a roadside, and planting them in sunken pots in the pond, it was really easy to add these hardy native plants in a way that meant they wouldn't spread too much and take over the pond.

Large Red Damselfly



Diving beetle



Yellow Flag

Four Spotted Chaser



Pond skater



Water boatman



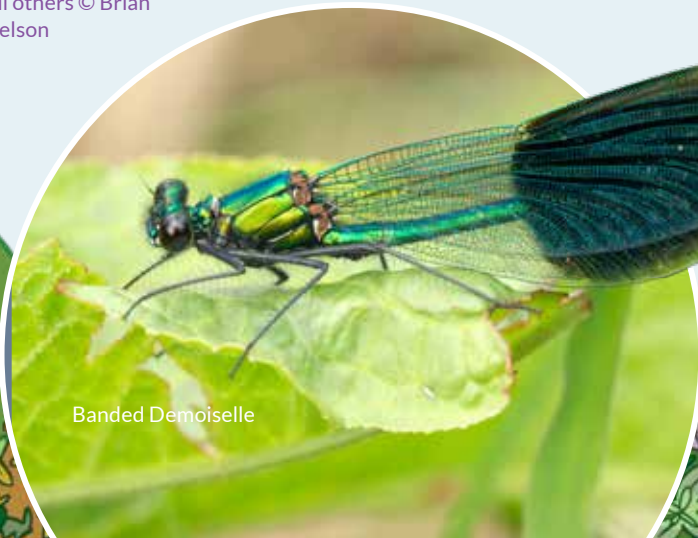
Newt © Shutterstock.
All others © Brian Nelson

Smooth newt



Many of us are unfamiliar with the Smooth Newt. Like frogs, newts spend most of their lives on land, but must return to water in order to breed.

Banded Demoiselle



Biodiversity-friendly management tips



Don't use pesticides

The rule is simple: If you avoid using chemicals, your garden will be much more biodiversity-friendly. 'Pesticides' include herbicides, fungicides and insecticides.

Remember: the insects and slugs, which you may be trying to kill, do feed the birds and mammals; while the flowers we call 'weeds' are often really important food sources for pollinating insects, and other insects too, which form the basis of the food chains in your wildlife garden.

Make your own compost

As well as being a way to recycle your garden and kitchen waste and giving you a rich substrate for your plants, a compost heap offers an important site where invertebrates can live and breed.



Conserve water

Installing a water butt recycles rainwater for your garden. This can also be used to top up the bird bath, bog garden or pond when necessary.



Make your own leaf mould

Make a wire cage in a corner of your garden to create leaf mould. Leaf mould is formed from decaying leaves and is a great conditioner for your soil. You can fill the cage with fallen leaves and needles in autumn. This is also a great way to provide a home for lots of soil and leaf litter biodiversity.



Only buy peat-free compost

Ireland was once home to the finest examples of raised bogs in Europe, if not the world. We have now reduced our peatlands to less than 10% of what once existed across the midlands. By choosing peat-free compost, you will help to conserve our remaining peat bogs and their unique biodiversity, including wading birds, amphibians, rare dragonflies and butterflies.

Alternatives to peat compost include ericaceous mixes, coir (coconut fibre), composted wood, composted green waste, and leaf mould. Always look for a 'peat-free' label rather than simply 'organic' as these may still contain peat. If there are none available, why not ask the store manager to stock peat-free compost. Customers can make this change happen!

A warning against Slug pellets

You may be tempted to use slug pellets to foil snails and slugs, but these can be very harmful to birds and mammals, such as hedgehogs who prey on the slugs and snails that consume them. Instead, you could try a beer trap or copper wire. Adding a strip of copper around flower pots or raised beds can help deter slugs and snails who don't like moving over copper.

If you can find a better way to deal with slugs (or learn to live with them!), they do provide food for hedgehogs and many birds and amphibians.



Record your backyard biodiversity

Ireland's biodiversity is unique and precious. It is part of what makes Ireland special and has intrinsic value. It also contributes €2.6 billion each year to the Irish economy through ecosystem services, including pollination, flooding mitigation, and human health and wellbeing, etc.

The National Biodiversity Data Centre stores over 4 million species occurrence records of over **16,000 species**. You can help document Ireland's wildlife!

In order to conserve Ireland's biodiversity, we need to document what biodiversity we have, understand how it is distributed across the island, and track how it is changing over time, and communicate the importance of conserving biodiversity. Building the scientific base to help its conservation is central to the work of the National Biodiversity Data Centre.

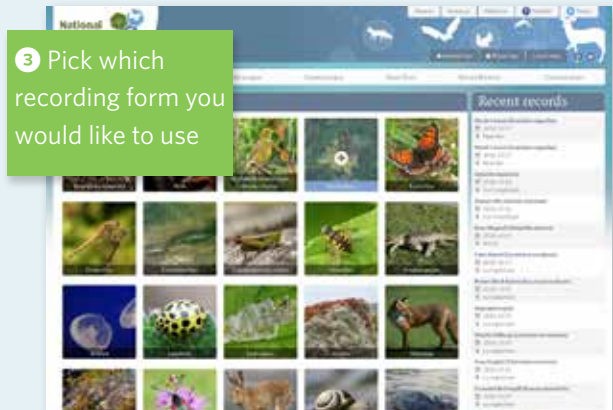
Ireland's Citizen Science Portal provides a facility for recorders to submit and store their biodiversity sightings online. The system gives greater visibility to recording activity across Ireland, while at the same time making data available to feed directly into outputs such as Red Lists and conservation management initiatives in Ireland.

Recording your sightings of Ireland's biodiversity has never been easier. Here are five steps to make your own submissions:

1 Go to the National Biodiversity Data Centre's Citizen Science Portal via the main website, or: <https://records.biodiversityireland.ie> your recording



2 Hit 'go' to start your recording



3 Pick which recording form you would like to use



4 Fill out your sample and observation details

5 Save your record

'Biodiversity Data Capture'



Is a free mobile app that offers you an alternative to the portal for recording Ireland's biodiversity

<http://www.biodiversityireland.ie/resources/apps>



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National Biodiversity Data Centre
Documenting Ireland's Wildlife



Acknowledgements:

Thanks to Catherine Casey, Heritage Officer, Laois County Council, for supporting this project and representing the views and enthusiasm of the Local Authority Heritage Officer network.

Thanks to Dr Una Fitzpatrick for proofing and support.

PHOTOGRAPHS: Thanks to the All-Ireland Pollinator Plan and the National Biodiversity Data Centre for allowing the use of photographs and illustrations from their picture library. Sincere thanks to: Brian Nelson, Liam Lysaght, Oran O'Sullivan, Leon Van der Noll, Steven Falk, Donna Rainey, Bryan Pinchen, Peter Cuthbert, Tom Cuffe, Jane Powers, Neil Foulkes, Liam Scott, Michael Keating, Anneke Vrieling, Dara Stanley, Una FitzPatrick, Paula O'Meara, John Fogarty, Frank Greenway, Tina Aughney, Faith Wilson, Zoe Devlin. Other images: Juanita Browne/Shutterstock

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Local Authority Heritage Officers work within most local authorities across Ireland. With the support of the Heritage Council, Heritage Officers play a key role in promoting heritage awareness, developing policy and providing advice and information on local as well as national heritage issues.

To contact your local Heritage Officer, see www.heritagecouncil.ie/our-work-with-others/county-heritage-officers



This guide was funded by The Department of Culture, Heritage and the Gaeltacht through the National Parks and Wildlife Service's National Biodiversity Action Plan Fund, with support from the Heritage Council and the Local Authority Heritage Officer Network



Useful Links:

All-Ireland Pollinator Plan, www.pollinators.ie

Bat Conservation Ireland,
www.batconservationireland.org

BirdWatch Ireland, www.birdwatchireland.ie

Green Schools - An Taisce, www.antisce.org

The Heritage Council, www.heritagecouncil.com

Irish Garden Birds, www.irishgardenbirds.ie

Irish Peatland Conservation Council,
www.ipcc.ie

Irish Seed Savers Association,
www.irishseedsavers.ie

Irish Wildlife Trust, www.iwt.ie

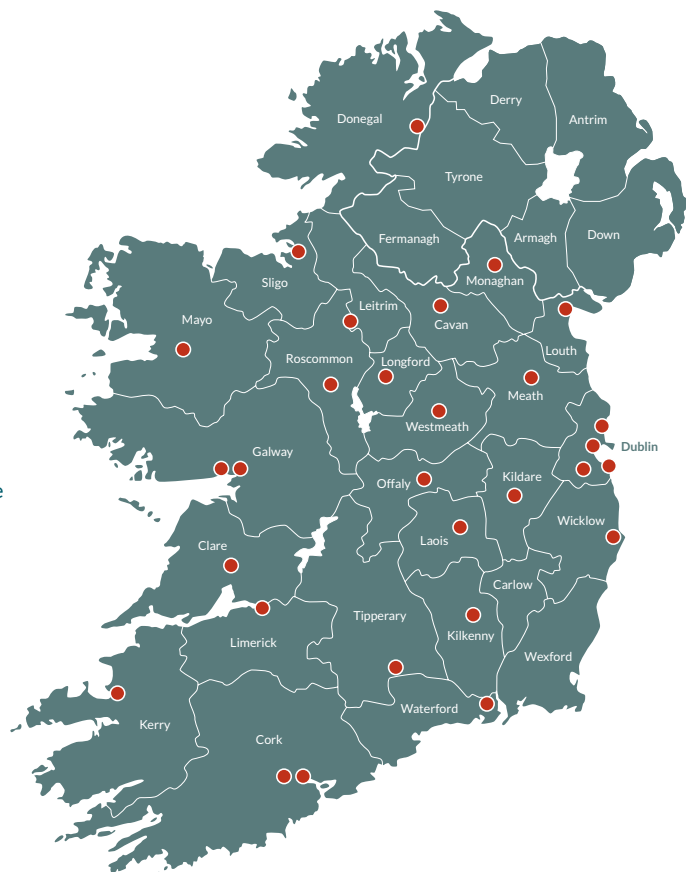
National Biodiversity Data Centre,
www.biodiversityireland.ie

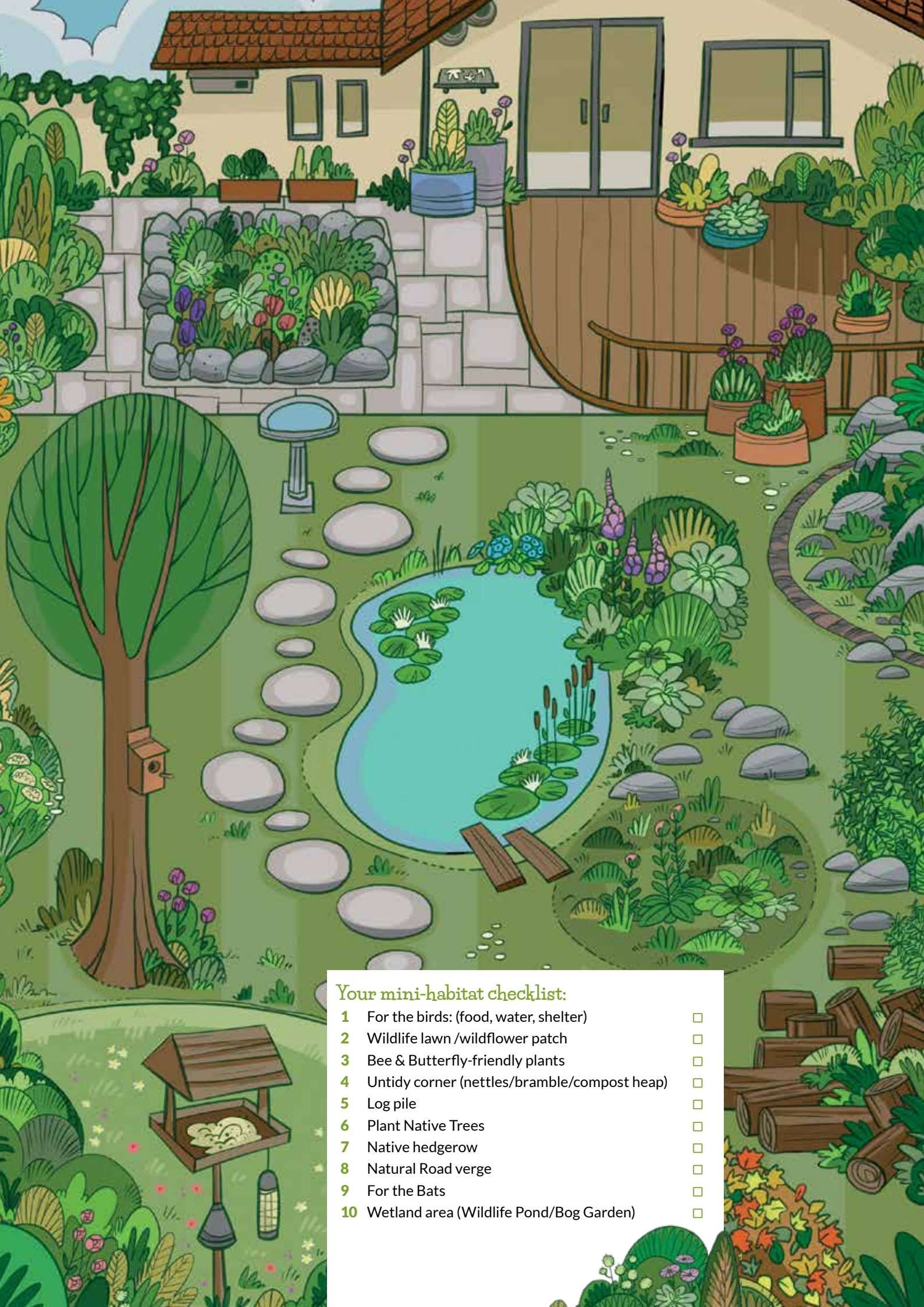
National Parks and Wildlife Service,
www.npws.ie

Native Woodland Trust,
www.nativewoodlandtrust.ie

Wildlife Rehabilitation Ireland, www.wri.ie

Wildflowers info
www.wildflowersofireland.com





Your mini-habitat checklist:

- | | | |
|----|--|--------------------------|
| 1 | For the birds: (food, water, shelter) | ☐ |
| 2 | Wildlife lawn /wildflower patch | ☐ |
| 3 | Bee & Butterfly-friendly plants | ☐ |
| 4 | Untidy corner (nettles/bramble/compost heap) | ☐ |
| 5 | Log pile | ☐ |
| 6 | Plant Native Trees | ☐ |
| 7 | Native hedgerow | ☐ |
| 8 | Natural Road verge | ☐ |
| 9 | For the Bats | ☐ |
| 10 | Wetland area (Wildlife Pond/Bog Garden) | ☐ |