Bring back our beetles

Discover the UK’s beetles and how you can help them
**Brilliant beetles**

Beetles (in the order *Coleoptera*) make up more than a third of all known species on earth – that’s around 400,000 worldwide. In the UK alone there are more than 4,000 species, and you can find them in almost every habitat, all year-round! Although a handful may eat your plants, beetles are a vital part of a healthy garden.

Not only do beetles come in an amazing variety of colours, sizes, and shapes - they are also important predators, they act as food for larger animals (such as hedgehogs and birds), and pollinate our flowers and crops. They even help to recycle nutrients, by eating and digesting plants and returning their goodness back to the soil.

In this booklet you’ll discover some of the threats beetles are facing, learn about their weird habits, and of course, ways you can help. We’ll even bust some myths!

**What is a beetle?**

Beetles are insects with hardened front wings, although you’d be forgiven for not realising this as they are often seen crawling around rather than flying. The wing cases protect the second (hind) pair of wings and are called ‘elytra’.

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**Beetles you didn’t know were beetles...**

Not all beetles have the word ‘beetle’ in their name. Here’s a few you may not have guessed belong here:

- Weevils
- Glow-worms
- Ladybirds
- Devil’s coach horse

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Cover image: Cardinal beetle © Penny Frith
Ladybird © Jon Hawkins Surrey Hills Photography

Stag beetles are only found in South East England.
# Alternatives to using pesticides in your garden

To get started, try to learn as much as you can about the sort of invertebrates that may feed on your plants. Consider if they really pose a threat, or whether they help contribute to a balanced, healthy garden. If co-existence is out of the question, there are many ways to control unwanted visitors whilst avoiding pesticides that can cause unintended harm to beetles and other creatures in your garden.

1. **Loss of habitat**
   - The way we use our land in the UK, from intensive farming to urban development, has led to shrinking patches of habitat for beetles, making it difficult for many populations to survive. But by following the activities in this booklet you can create more places for our precious beetles to live!

2. **Loss of connected habitats**
   - As well as getting smaller, habitats are becoming more fragmented, with less connection between them. That’s why our gardens can make a huge difference – not only are they important habitats, they can also provide corridors for beetles to pass through until they find the perfect spot.

3. **Climate change**
   - Climate change is having an impact on all wildlife and beetles are no exception. Warming temperatures and shrinking habitats can mean beetles struggle to survive where they once thrived, and of course this causes problems for the other animals and plants that rely on them, too.

4. **Pesticides**
   - The use of pesticides is resulting in serious declines across lots of invertebrates, including many beetles. Even pesticides that aren’t intended to target beetles can harm or kill them, so it’s important to avoid using them.

5. **Pick up and move any invertebrates that might be nibbling crops a little more than you’d like during the spring and summer; checking after rainfall for slugs and snails can help too!**

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**Beetles under threat**

Sadly many of our beetles are struggling, and here’s why…

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To learn more about the threats beetles are facing, how to avoid using pesticides and herbicides, plus other ways you can help, download The Wildlife Trusts’ guide to taking #ActionForInsects: [www.wildlifetrusts.org/take-action-insects](http://www.wildlifetrusts.org/take-action-insects)

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1. ** sexton beetle © Derek Moore**
2. ** mint beetle © Amy Lewis**
Fascinating beetle facts

Beetles bring balance to your garden

- Beetles support lots of garden life; for example, the often maligned lily beetle provides food for three parasitoid wasps that feed inside its larvae.

- Many ground beetles feed on a range of invertebrates – from springtails to vine weevil grubs.

- Rove beetles are vital predators: the big-eyed Stenus species can walk on water and use extendable mouthparts to prey on springtails!

- Glow worm larvae and snail hunter ground beetles can come in handy, specialising in eating snails.

- Water beetles are important predators too: smaller species eat mosquito larvae, while larger species can feed on dragonfly larvae and tadpoles, helping the pond to find a natural balance.

They also clean up!

- Some beetles such as rose chafer grubs help clear up dead plant waste, while many help to break down dead wood, including the rare violet click beetle, found only in three sites in the UK.

- Some, such as dermestid beetles, feast on the last remnants of flesh on dead animals, leaving a clean skeleton, while sexton beetles bury dead animals and feed their grubs on the regurgitated remains!

- Then of course, there are the aptly named dung beetles which feed on animal waste, and are most commonly found in woodland or farmland.

We have over 60 species of dung beetle here in Britain and, true to their name, most eat dung. This makes them a vital part of the ecosystem, particularly on farms, where they keep the soil healthy – in fact, they’re estimated to save the British cattle industry at least £367 million per year!

Asparagus beetles and lily beetles let out a high-pitched squeak when under threat, though they may also use this to communicate with each other, too.

The flightless bloody-nosed beetle gets its name from the blood-like red liquid that oozes from its mouth when threatened, activated to scare off predators.

If click beetles are upturned, they arch their backs to create tension in a special hinge in their thorax, which when released lets out a loud click. This action hurls the beetle into the air at speeds of more than 2-metres per second, helping them to get back on their feet or out of harm’s way.

When female pot beetles lay eggs, each is covered in a shell made up of her droppings. Once the eggs hatch, the larvae use their own droppings to enlarge this protective ‘pot’, keeping them helpfully hidden from predators until they’re fully grown.

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Dung beetle © Vaughan Matthews

See more images at www.wildaboutgardens.org.uk
**Build a beetle bank**

You will need:
- Stones or garden hose
- Topsoil
- Wheelbarrow
- Spade
- Grass seed or wildflower meadow seed (with 80% grass) or turf

1. Pick a sunny spot for your beetle bank (ideally around 1m long) and mark it out with straight or curved lines using stones or a garden hose.
2. Spread the topsoil evenly inside the markings, treading it down after each 10-15cm deep layer to compact the soil.
3. Keep building a mound until it is at least 30cm high and wide. The top can be flat or rounded.
4. Once you have created your mound, sow your seed and firm it down with the back of a rake. If using turf, lay this over the mound and firm down.
5. Keep your bank watered in dry weather. On seeded banks, use a fine spray to avoid eroding the soil.
6. Let the grass grow long all summer. Cut it back in October to approx. 5cm high.

**Make a dead hedge**

You will need:
- Thick garden gloves
- Woody trimmings from pruning trees, shrubs or hedges, including several thick, long branches or stems
- Loppers
- Mallet
- Small axe or billhook

These structured piles of branches and twigs serve a whole host of species but, as the material rots away, it makes for the perfect residence for beetles! You could use your 'hedge' as a garden boundary, or just to divide up an area of your garden or green space. Your hedge should be at least 1.5m long, roughly the length of a fence panel.

1. Select the straightest, sturdiest branches to form into upright stakes and angle on one end using a small axe or billhook. Garden stakes work well if your branches aren’t thick enough.
2. Use the mallet to drive stakes into the ground every 50cm, pointed end down.
3. Drive in a second row of stakes 30-50cm away from your first row so you have two parallel rows.
4. Weave remaining branches and trimmings in and out of the stakes, or simply pile them up in the gap between the two rows. Continue until you’ve built your hedge up to a good height.
5. As the hedge starts to decompose over time, top it up with branches or trimmings. Keep an eye out for new residents in your dead hedge!
A year in the life of...

the 7-spot ladybird

October to April: Ladybirds overwinter among plant stems or sometimes inside homes, in a dormant state until springtime, when they venture out to find food.

June-July: Mated females lay eggs close to the mating site and near a plant with a good supply of aphids. These hatch into larvae, which pass through four instars (stages), eventually forming pupae.

May: Male and female ladybirds mate as often as possible and with multiple partners.

August: Adult ladybirds emerge from pupae and seek food.

September: Adults feed ahead of overwintering from October.

A year in the life of...

a stag beetle

This endangered beetle spends the majority of its life underground as larva, feeding on rotting wood. This can last from three to seven years! Most of the activity above ground occurs in the summer months.

May-June: By now, most adult stag beetles have died; their sole purpose is to mate and lay eggs. Typically, they survive at most for a few weeks, though many will only live as adults for days, often preyed on by magpies or squirrels, or sadly hit by cars.

June-July: Mated females lay eggs close to the mating site and near a plant with a good supply of aphids. These hatch into larvae, which pass through four instars (stages), eventually forming pupae.

July: After mating, females seek dead tree roots to lay their eggs, often choosing a site near to where they emerged from.

June-July: During the spring and summer – most typically in June – the male stags sun themselves, warming muscles before taking off in search of a mate. You can often spot them in slow, low buzzing flight.

May-June: Once pupae have metamorphosed into adults, and the weather is warming up, the beetles emerge from below the ground.
Water beetles are an incredibly diverse set of insects. All of them live in water at some point of their lifecycle, and there are about about 300 species in the UK alone! If you have a wildlife pond in your garden, no doubt you will have water beetles hanging around. Let’s dive into their underwater world...

**Relocation, relocation...**
Water beetles can fly, so they can relocate to a new home if their current one isn’t quite right. However, many have to wait for a very warm day before they make the move, as otherwise their flight muscles don’t work!

**Water breeders**
As they mate underwater, the male great diving beetle uses suction pads on its front feet to grip on to the female, whose deeply grooved wing cases help the male to cling on.

**Deep-pond diving**
Water beetles come up to the surface every so often to replenish the air supply stored beneath their wing cases. Think of it as an in-built scuba diving tank to enable them to find prey underwater!

**Keen senses**
Whirligig beetles are common inhabitants of pond surfaces, easily spotted as they gather in large numbers, circling erratically across the water. They’re incredibly sensitive to ripples in the water – these help to guide them towards insects trapped on the surface, which they then eat!
More ways to help beetles in your garden

There are lots of things you can do to help out the smaller inhabitants of our gardens, and happily, by helping beetles, you are providing for other wildlife too.

Find a place for dead wood in your garden. This could be a dead or dying tree left to stand, a cavity in an old tree, or a pile of old stumps and logs.

Piles of rocks provide daytime shelter for nocturnal beetles, and piles of leaves are also great, as many species like to lay their eggs in decaying leaves.

Make a stumpery in a shady corner of your garden to help feed dead-wood loving beetles, such as the lesser stag, rhinoceros, and longhorn beetles. It will also provide a home for predatory beetles plus lots of other invertebrates and even amphibians.

Grow pollen-rich open flowers for beetles – perhaps the world’s first pollinators. Beetles such as soldier beetles, the thick-legged flower beetle, longhorns and chafers may pay a visit.

Cover water butts and provide a route out of ponds for land-living beetles, such as a pebble beach. If you see a dead-looking beetle in water, take it out – they often revive!

Replace artificial grass with real grass so beetles have a place to live, and try to keep the amount of decking or paving in your garden to a minimum.

Leave cutting back your flower beds until late winter. The dead plant stems will be used by overwintering beetles and other invertebrates such as spiders.

Try to tolerate leaf feeding beetle damage. For example, rosemary and mint beetles may appear in your herb garden, but they rarely cause serious damage and add vibrancy and colour!

For even more ways to take ActionForInsects, head to www.wildlifetrusts.org/action-for-insects
About Us
The Wildlife Trusts and the RHS embarked on Wild About Gardens to celebrate wildlife gardening and to encourage people to act for nature. Over the past 50 years, we’ve seen declines in two thirds of the UK’s plant and animal species. Many of our common garden visitors – including hedgehogs, house sparrows and starlings – are increasingly under threat, but collectively gardens can make an incredible difference. To discover more about wildlife gardening and for more resources, visit our website. You can also sign up to our monthly newsletter to receive updates and ideas on all things Wild About Gardens.

The Wildlife Trusts
The Wildlife Trusts are on a mission to restore at least a third of the UK’s land and seas for nature by 2030. We believe everyone, everywhere should have access to nature and all the joy and health benefits it brings us. No matter where you are in the UK, there is a Wildlife Trust inspiring people about the natural world and standing up for wildlife and wild places near you. We care for 2,300 diverse and beautiful nature reserves and work with others to manage their land with nature in mind too. Help us bring our wildlife back in abundance by becoming a member of your Wildlife Trust today.

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The Royal Horticultural Society
For more than 210 years, the RHS has been the force behind gardening in the UK. Our aim is to enrich everyone’s life through plants, and to make the UK a greener and more beautiful place. We believe everyone in every village, town and city should benefit from growing – for stronger, healthier and happier communities. Our work in education, science and communities is only possible thanks to the generous support of our visitors, members, partners, donors and sponsors. With your help we can harness the power of horticulture, one gardener at a time.

Email: communities@rhs.org.uk
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