

Garden Guardians *in association with* **Do You Have The Bug**



FOR THE INSECTS



A Stroud Garden



Garden Guardians



This interactive online resource has been created by Steve Roberts in partnership with Stroud Valleys Project, who are the lead partner in the Garden Guardians project.

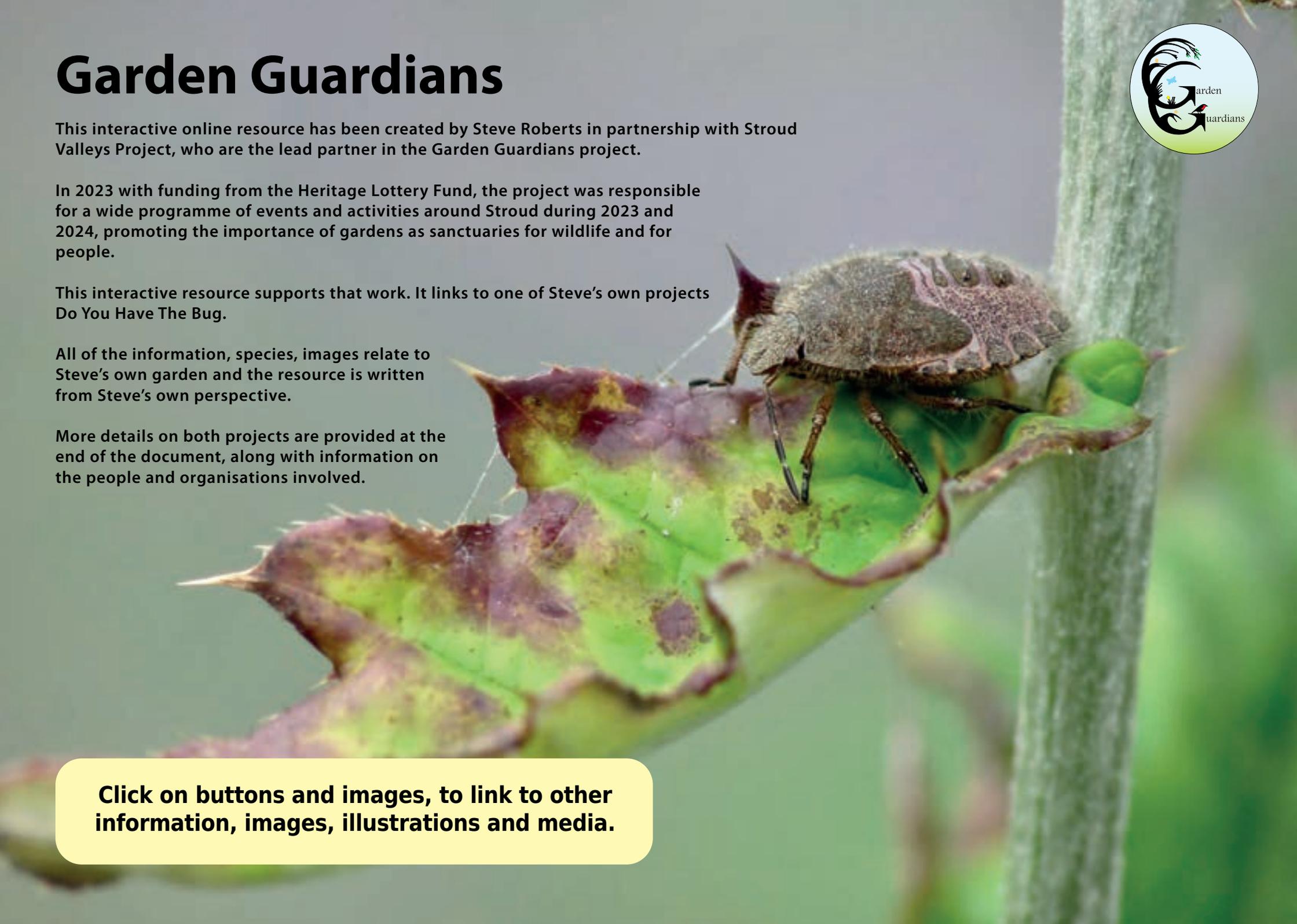
In 2023 with funding from the Heritage Lottery Fund, the project was responsible for a wide programme of events and activities around Stroud during 2023 and 2024, promoting the importance of gardens as sanctuaries for wildlife and for people.

This interactive resource supports that work. It links to one of Steve's own projects Do You Have The Bug.

All of the information, species, images relate to Steve's own garden and the resource is written from Steve's own perspective.

More details on both projects are provided at the end of the document, along with information on the people and organisations involved.

Click on buttons and images, to link to other information, images, illustrations and media.



Contents

Stroud Garden

The garden, the insects

Plants

Sun

Shade

Night

Stone

Holes

Wood

Water

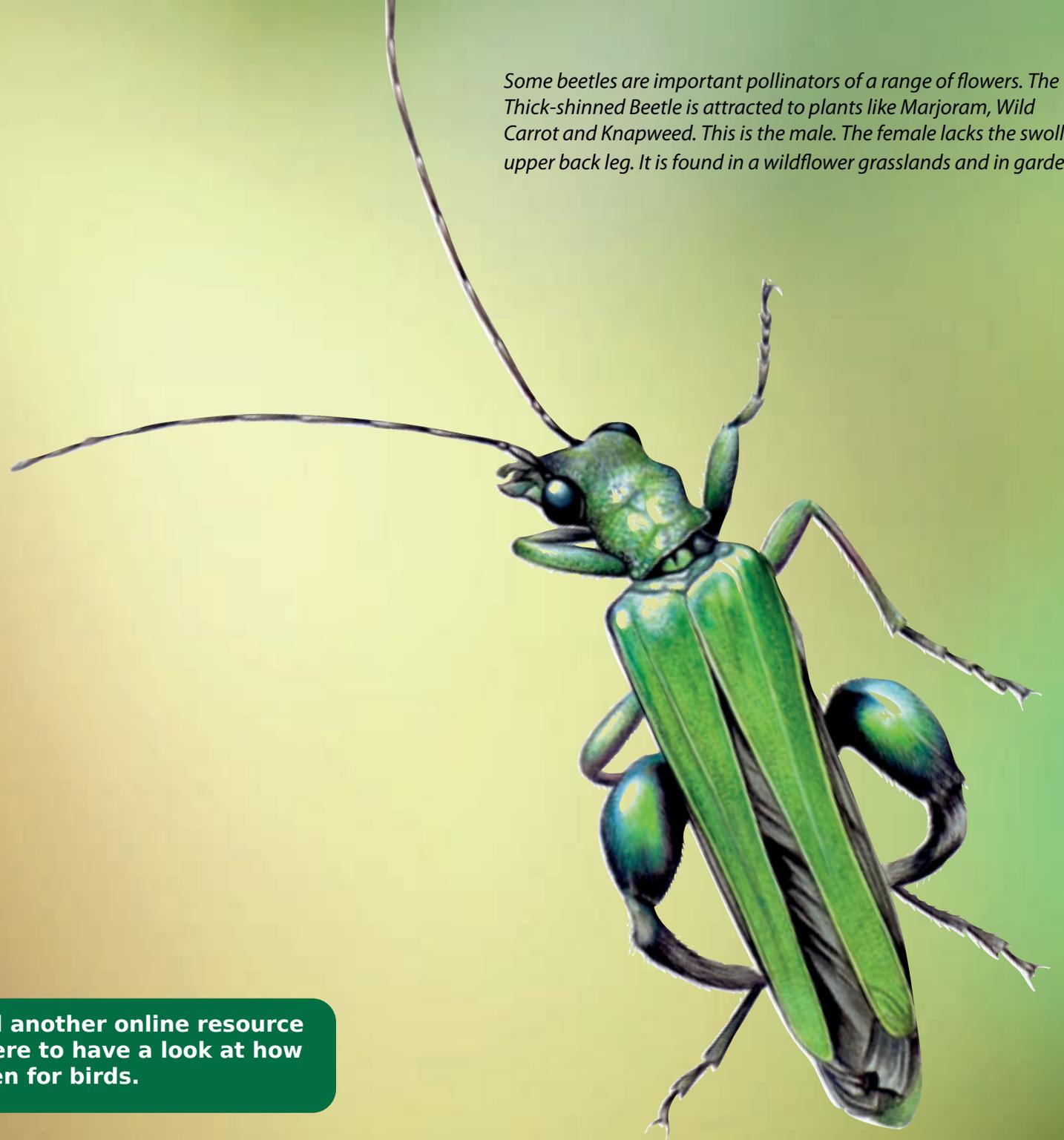
Recycling

Insects

Photographic stories: local

Additional resources on insects

Some beetles are important pollinators of a range of flowers. The Thick-shinned Beetle is attracted to plants like Marjoram, Wild Carrot and Knapweed. This is the male. The female lacks the swollen upper back leg. It is found in a wildflower grasslands and in gardens.



Garden Guardians has produced another online resource called 'FOR THE BIRDS'. [Click here](#) to have a look at how you can also garden for birds.

The garden

'We moved into our current home in 2018, one year before the Covid pandemic. For my part, I was not that interested in gardening until we arrived at our new home.

What has driven my enthusiasm since the move?

Wildlife. More specifically, insects.

I have been interested in insects for many years. I have specialised in illustrating them for the last 20 years. As I began to familiarise myself with the garden, I realised here was an opportunity to attract more insects and that I could use the garden to build on existing and new learning and educational projects.

The garden is not exceptional in any way and is a five minute walk from Stroud Town centre. The potential for a good wildlife garden was there when we moved in but it has taken a lot of work to begin to realise that potential.

Every photograph in this resource has been taken in the garden. Evidence that the space has become a thriving place for a wide range of insect species.

Providing a habitat for insects is not simply down to choosing the right plants for pollinators. Insects need places to shelter, to breed, to over-winter, to hibernate. Many have very different larval and adult forms, each form may need a different habitat in which to live.

This resource is not going to tell you what you should do in your own garden or space. For each one of our gardens is different and you cannot do everything. Your outdoor space may be very small, maybe there is no open soil or green planting, only room for some plant pots in a small courtyard. Cost might limit what you are able to do.

Instead, we will show you what we have done by way of examples and ideas. You can choose to follow and/or adapt some of these in your own way for your own space. Or you can simply enjoy finding out about some of the species of insect that visit UK gardens.

The story of the insects and the development of the garden have gone hand in hand.



Insects will readily make use of the things that we build in which to make their homes. Small solitary mining bees such as this one (Osmia rufa) will use the holes, nooks and crannies in a garden shed.

Insects

Many of us take these smallest of creatures for granted, we do not give them a second look. A bee is bee, a fly is a fly, a wasp is a wasp. Some insects can provoke fear and anxiety within us. Fear of bites, of stings, of swarms and plagues!

Others may be unwelcome around the garden, damaging and/or destroying the plants and vegetables we nurture.

Understanding that these are but a tiny minority of the vast number of insect species that share our spaces, you might begin to look at insects in more detail and appreciate world of wonder on your own doorstep.

Of course, not everyone has a garden large enough or suitable enough to do everything we have tried to do.

But there are things here that you can select and apply in any small space. The right plants is very important, but there are other things that you can consider.

After all, like all living creatures, insects need the same basic things:

FOOD
SHELTER
A HOME

But food and shelter can mean very different things to each insect species and you can help a greater number by watching them and providing the things they need.

The next few pages offer up some things to consider, when you are thinking about what is best for insects.



A parasitic Ichneumon Wasp on a Fennel flower head.

This family are often referred to as ichneumon 'flies' but they are not related to true flies at all.

They do not sting. The spike at the end of its abdomen is used to inject eggs into the larvae of other insects.

Plants

There can be a tendency to think that wildflowers are best for attracting insects to the detriment of cultivated flowers. Experience tells that an area of wildflowers can attract the most diverse mix of insects from a range of different families, bringing rich rewards.

But many insects are attracted by a range of cultivated flowers, particularly bumble bees and honey bees. You can have more traditional borders and wildflower areas in your garden. Shrubs are also a valuable source of nectar and trees can be really helpful to insects, providing blossom in the spring.



Bee-fly feeding on forget-me-nots



Green-veined White on Inula hookeri

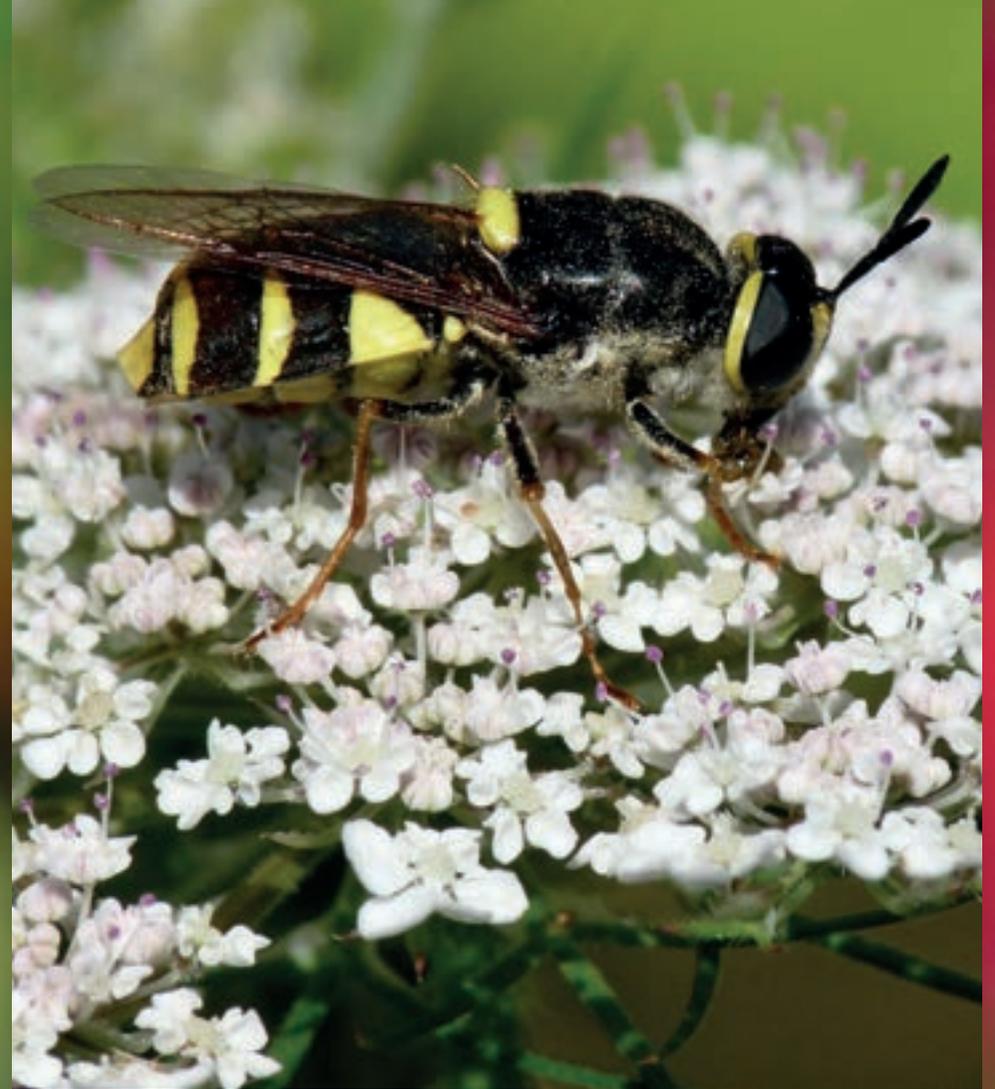


Comma on Buddleja (davidaii)



Hoverfly (Volucella pellucens) on Hemp Agrimony

[Click here to see four more species feeding on Wild Carrot](#)



During the summers of 2022 and 23, the Wild Carrot was particularly rewarding for insects, including a number of species of Soldier Fly, such as this Banded General.

Plants

With the accelerated changes in climate and the rise in summer temperatures in the UK, we are all having to think more about the choice of plants in our garden. Herbs, especially those that originate from Mediterranean countries are ideal. What's more, many are very attractive to a wide range of insects.

Click here for my top ten plants. These are not necessarily the ten best. but have proved very successful at attracting insects in our own garden.



White-tailed Bumble bee on Laven-



Conopid Fly on Marjoram



Solitary wasp (polistes species) on Sea Holly



Species of Big headed Wasp on Fennel



This is Volucella inanis. One of the most striking and one of the largest UK hoverflies. It is particularly fond of Marjoram, like its larger relative Volucella Zonaria (largest of all UK hoverflies).

Sun

While many species of insect inhabit darker, shady places, if you really want to enjoy the sights and sounds of insects in the garden, you must consider that big yellow ball in the sky we call the sun.

Some insects are active in a variety of different weather (bumble bees, wasps and flies are pretty tough), but a garden can burst into life when the sun is blazing down and the temperature is higher. In lower temperatures many insects are sluggish and remain hidden. As the heat rises, it warms their bodies and their muscles and they become more mobile.

The fragrance of some flowers, mediterranean herbs for example, is intensified in the heat, further encouraging the insects to explore and feed when the temperature rises.

Your garden will need sunny and shadey areas, but is worthwhile looking at how the sun moves around the garden. Where are the sunniest spots, which parts of the garden receive the greatest amount of sun throughout the day, remembering that the sun's heat will be less in the morning and evening.



Above. It's before 10am on an early summer morning. The sun is rising, but its rays are only reaching certain parts of the garden. The hoverfly is using its feet to have a good clean to prepare for the day ahead.

Left. Robber flies spend a lot of time waiting for other insects to fly by. Then they will dart out at great speed and capture their prey in their long, strong, front legs. The heat of the sun will warm and strengthen their wing and leg muscles.

Sun

Our summers are getting hotter. This is the main trend and while we may still get downpours, we need to think about plants that can withstand greater heat and longer periods without rain. If at the same time, we want to attract a greater variety of insects, then there is an answer.

We need to look to herbs and in particular, those that thrive in a Mediterranean climate. Lavender is a great plant for bumble bees and honey bees, but if I had to single out a couple of herbs that from my own experience, attract a wider range of species, they would be Marjoram, followed by Fennel.



Nomad Bee on Marjoram



Small Tortoiseshell on Marjoram



Hoverfly (Eristalis species) on Marjoram



Brown Argos on Marjoram

Fennel seems to be particularly irrestable to wasps. Not just the Common Wasp, but some really interesting species, none of which sting. Ichneumon wasps also like Fennel.



Our weather is so unpredictable of late. One minute it is warm with some sunshine. The next a tropical storm. The rain might only last a short while, soaking everything in the garden. This might happen several times during the course of a single day.

Remember that while it pours, the insects seek shelter. If the rain is immediately followed by sunshine and warmth, the insects can be back feeding within a few minutes. They have to. It's a necessity. This can be a great time to explore the garden.



Sun

If we needed evidence about how many insects 'love' the sun, it is in the evenings. The garden slopes down from east to west. In the final hour before the sun sinks behind the Cotswold scarp to the west, it illuminates the top of the garden and in particular, a timber fence and a timber garden shed.

While some insects have already started bedding down for the night, others are still on the move. Bees, flies and wasps appear to be pretty robust in comparison to others, the first on the wing in the mornings and the last in the evening. Yet they will seek out the last of the sun's rays before they finish their day. The timber fence and shed are the ideal places.



The summer sun is sinking ever lower in the sky. Its light is now only reaching the western face of a fence and a garden shed. But as long as there is heat to be enjoyed, insects will exploit it. Like this Common Wasp

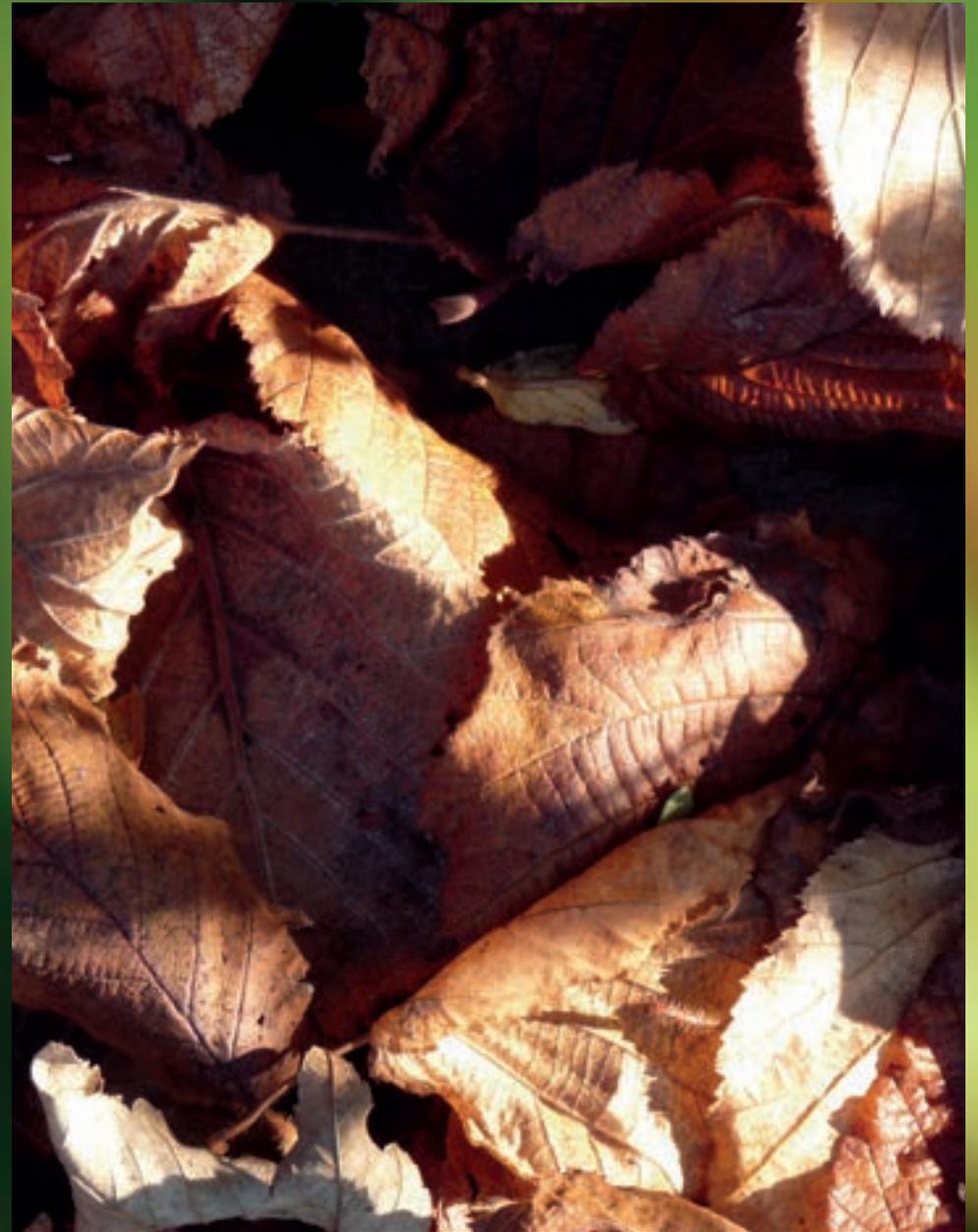
Shade

While it would be truthful to say that you will see more insects in the sunniest spots of the garden, do not ignore the shade. There are many species that like the shadier places, some the darkest places. While the sunlit air might be full of winged bees, flies, and wasps, others will be hunting, sheltering or feeding among the foliage. Many may avoid being seen in the open altogether, lest they fall prey to another insect predator.

A garden that has a range of flowers, small, medium and larger shrubs and trees will be a more a richer habitat for insects. Trees can provide shade for you and the family and provide more oxygen.



A Ground Beetle makes a rare excursion into the sunlight. It prefers the shadows and darkness among the leaf litter, stones or ground vegetation.



The summer sun is sinking ever lower in the sky. Its light is now only reaching the western face of a fence and a garden shed. But as long as there is heat to be enjoyed, insects will exploit it. Like this Common Wasp

Night

A whole new community of insects emerges once the night falls. If you sit in the garden on warmer summer evenings as the sun is sinking, you may begin to see some flying around against the sky or caught in the house or garden lights. They will probably all be moths.

For some people, moths hold a deep interest or fascination. They will entice them to their moth traps overnight in order to look at them and study them in daylight the following day. But you can explore your garden at night, armed with a torch and maybe a camera, to see what is about.



A beautiful Brimstone moth attracted to the household lights, lands on the window.



Top left: Adult Caddis-fly, sometimes mistaken for moths

Top right: A Light Emerald. A woodland moth that will visit gardens with some established trees.

Bottom left: Mosquito

Bottom right: This Common Wasp is guarding the entrance to a nest within a low stone wall. There were often a couple of wasps stationed at the nest entrance around midnight during the summer months.

Stone

What possible attraction might stone have for insects?

It's all about the sun and heat. Find the right stone, flooded by sunlight, strike the pose and soak up the sun. While the sun's rays heat from above, the stone reflects the heat from below.



A Comma butterfly enjoying the sun, its wings fully flattened as to be almost touching the surface of the stone. You may see other species of butterfly doing the same, Peacock, Small Tortoiseshell, Red Admiral.



Sitting on an exposed slab of stone in the sunlight might be a slightly risky thing to do. This hoverfly is maybe relying on its mimicry of a wasp to offer it some protection from would be predators. It does show how important this behaviour is to some insects.



There are several Common Field Grasshoppers in the garden this August (2023). They are generally in the wildflower and grassland area. I heard only two last year. They seem to be drawn to the same two slabs of stone at the corner of a low wall. It may be to enjoy some sun, but it usually ends up in a face-off between individuals singing at each other.

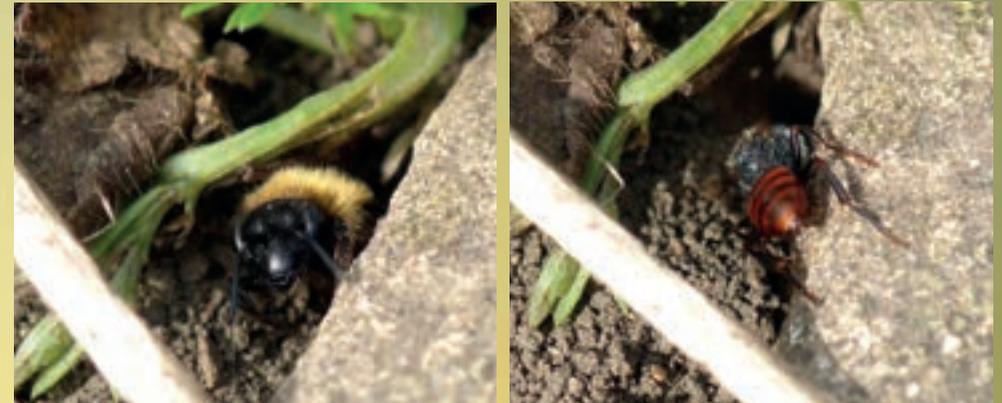
You may have stone walls around some of your flower beds or stone pathways. On sunny days, look for insects sunbathing on them. If you only have access to a few pieces of flat stone, find a place to lay them, angled in a southerly direction for maximum sunshine.

Holes

When all the feeding is over, insects require somewhere to rest, to sleep, to hide. For many that means finding a hole. That hole could also be the entrance to a nest where the species is breeding. That nest may be at the end of a longer tunnel or system of tunnels. Holes in the ground, holes in soft and rotting wood, holes in timber buildings, in brick walls, in tubes made specifically for bees and other insects.



Mining bees create a vertical tunnel in the soil from which a number of horizontal tunnels lead to an egg chamber. Several individuals may use an area of the garden, leaving small mounds of soil on the surface (right).



For the bumble bee (above left) this hole beneath a stone slab is a nest in which to raise its young. On leaving the nest, the hole is visited by another insect. It looks very different from the bumble bee, but it is a bee, a nomad bee. As its name suggests it has no fixed abode. It is a kind of cuckoo bee and as that name suggests, it lays its eggs in the nests of other bee species



'No Mow May': A national strategy to reduce cutting of lawns at a time when many species of mining bee are nesting in their underground homes

Holes

Why make a hole when one is already available. This hole is in the door of the garden shed just where the door overlaps on to the shed frame. It is where a knot of wood occurs and a plug at the centre of the knot has fallen out.

Every year at a number of times during the summer it is occupied by solitary mining bees.



I cannot be certain, but I think three different species have used it

The hole story

Over the six years until 2023 that we have been at the house, we have had to do quite a bit of thinning of the hedgerow that surrounds the garden, including removing a few smaller trees. The trunks have been cut into sections and these have been used around the garden for bed borders, steps, wood piles, etc. Some were already soft and beginning to decay.

In order to encourage insects to use them, we drilled various sized holes in them. A couple of years on and as the logs soften and decay, they are a focus of activity.



In particular, a small log beside the wildflower meadow. The photos (right) were all taken within the same hour.



The rear end of a leafcutter bee as it left the hole. Did not see it return.

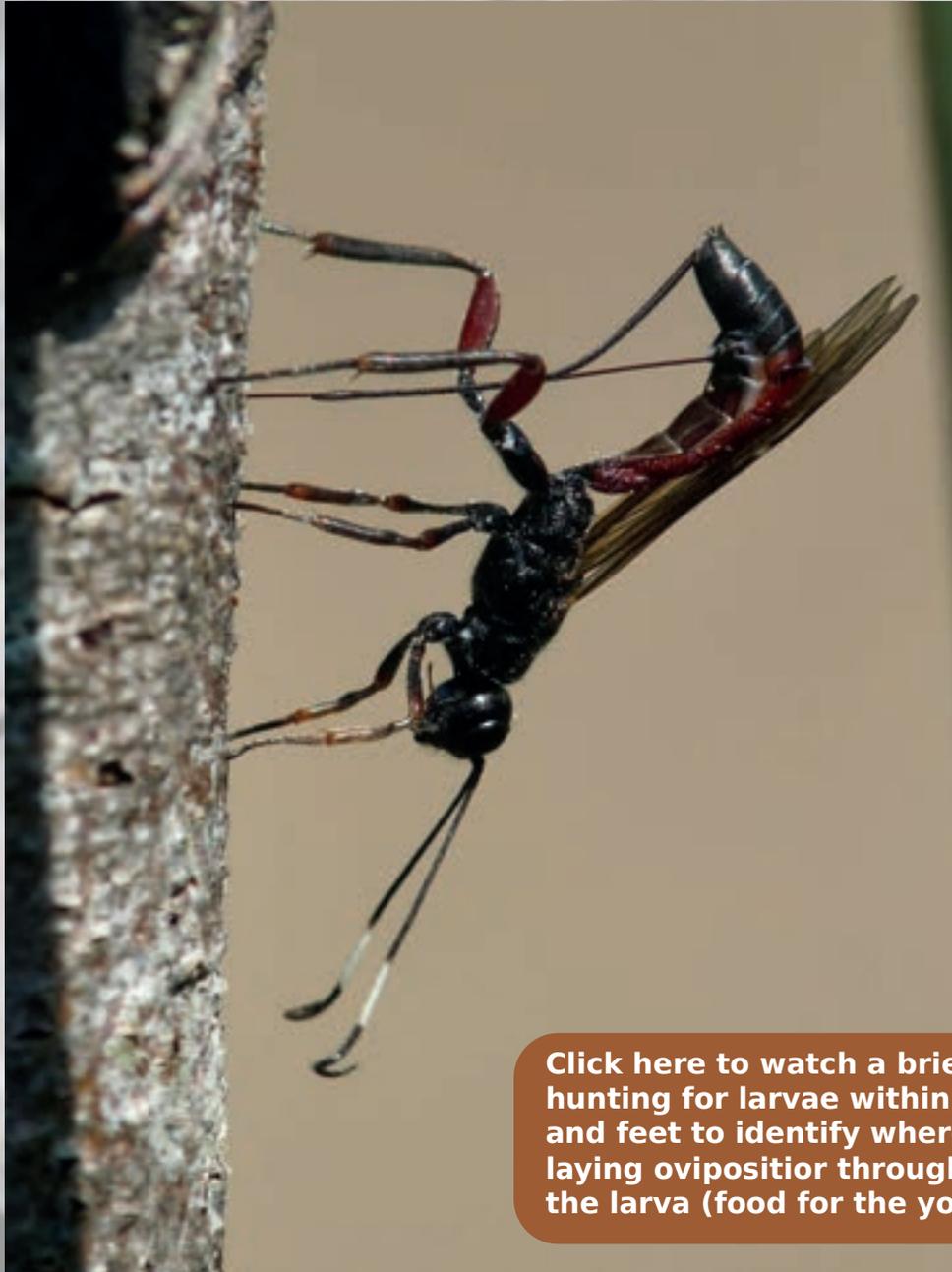


Anthomyia pluvialis. A small spotted Fly. This one was taking a great interest in the hole, but here was something inside.



The occupant. A small digger wasp, which showed itself a few times before returning into the hole.

Wood



Click here to watch a brief video of this Ichneumon Wasp hunting for larvae within the post. Using its antennae and feet to identify where the larva is, it pushes its egg-laying ovipositor through the bark injecting its egg into the larva (food for the young wasp once it hatches)

For some species, timber offers a home. That same log as on the previous page, is peppered with lots of smaller holes and a number of these are the nests of tiny wasps.

One such wasp (right) is returning to its nesthole with what looks like a spittlebug.



Other insects (some parasitic) move over the bark searching for prey hiding within it or wait for species to leave their nests to nip in and Over at wo week period in August, the wasp (right) was always on the log in the same place.



Other species



Water

Introduce water into your garden and you offer opportunities to a wide number of species that just might pass your garden by without it being present.

A pond of some kind is the best, but you might be able to adapt a household or garden container into a watery habitat.



Though some dragonflies such as the Southern Hawker and the Broad-bodied Chaser visit gardens where water is absent, they are far more likely to return again and again if there is a pond or other watery habitat present.

They may breed in your pond, such as the Southern Hawker dragonfly (right). This one is in the final stages of emerging from its nymph shaped skin (exoskeleton). It clings to the stem of a Yellow Flag Iris. Its coloration is pale and will change very quickly before it is ready to take flight.

The larvae of dragonflies and damselflies live beneath the the surface of the water. The Pond Skater lives on the very thin elastic like film on the surface of the water, skating across it to catch other insects.

This hoverfly (right), a convincing wasp mimic is never far from water, often perching pond-side stone or plant stem, or on the weed covered water itself.



[Click the pond-skater and the hoverfly for illustrated images](#)



[Click here to find out all about ponds. Tips on how to make them and the other wildlife they can attract.](#)

Water

Introduce water into your garden and you offer opportunities to a wide number of species that just might pass your garden by without it being present.

A pond of some kind is the best, but you might be able to adapt a household or garden container into a watery habitat.



Though some dragonflies such as the Southern Hawker and the Broad-bodied Chaser visit gardens where water is absent, they are far more likely to return again and again if there is a pond or other watery habitat present.

They may breed in your pond, such as the Southern Hawker dragonfly (right). This one is in the final stages of emerging from its nymph shaped skin (exoskeleton). It clings to the stem of a Yellow Flag Iris. Its coloration is pale and will change very quickly before it is ready to take flight.

The larvae of dragonflies and damselflies live beneath the the surface of the water. The Pond Skater lives on the very thin elastic like film on the surface of the water, skating across it to catch other insects.

This hoverfly (right), a convincing wasp mimic is never far from water, often perching on a leaf above the water or a pond-side stone or plant stem.

Left: What is this alien like bug? Click here to find out!

Right: How does a water scorpion find anew pond to live in



Photographic stories 1

Over the last few years, we have published a series of photographic supplements to support the *Do you have the bug* online magazine. Each individual supplement has a theme that links each photograph. Taken together they cover a range of species and plants, but also insights into behaviour and life cycles and beneficial garden plants.

You can link to all of them from the next two pages. Click on the images below.

Do you have the bug?

YELLOW

Rodborough
Common,
Stroud

The petals of a Hawkbit begin to open in the early morning sun on a summers day, revealing a sleeping Sawfly.



<https://stroud-nature.org/do-you-have-the-bug-issue-2/>

Do you have the bug ?

SHED

This hole was home to this solitary bee during the early summer of 2021. It was in the door of a garden shed. The hole is the result of a naturally occurring knot in the wood.

Despite the door being stained and regularly opened and closed, the hole provided home to a number of different species during the rest of the summer.



<https://stroud-nature.org/do-you-have-the-bug-issue-2/>

Do you have the bug?

GLASS

New perspectives

Against the light of the day outside, a flesh fly is anchored to the window by the pads on its feet.



<https://stroud-nature.org/do-you-have-the-bug-issue-2/>

Do you have the bug?

NOT BEING SEEN

Not wishing to be seen

Whether to avoid predators or to set an ambush of its own, this Robber Fly positions itself perfectly on the tip of an Ash sapling



<https://stroud-nature.org/do-you-have-the-bug-issue-2/>

Do you have the bug?

SHE'S NO LADY

Harlequin Ladybird

Ladybirds. One of the most familiar of all insects to people of all ages, including young children.

Liked by many, especially gardeners, as all ladybirds, both as larvae and adults, are voracious predators of aphids. Aphids that can damage and kill many garden plants.

The larva (left) and around 50 more, completely cleared a small crooked willow of aphids that at one point covered every single new shoot on the plant.

The empty skins of its meals lie scattered over the leaf.

Ladybird larvae of all sizes were present in the garden during June. Almost every one of them was a Harlequin Ladybird - the invader, a larger, more aggressive species which is taking over from our more well known UK species.

This individual was as big as it was going to get. In the days that followed the larger larvae stopped feeding. They searched for a prime spot in the garden and stopped moving. Some chose the timber walls of the garden shed to begin ... the change.

Do you have the bug
In association with



<https://stroud-nature.org/do-you-have-the-bug-issue-2/>

Do you have the bug?

THE SPIDER AND THE..

Throughout the world a number of species of spider mimic ants in order to fool them and prey on them. This Crab Spider (Xysticus sp) is not one of them, neither is it interested in the ant that is scuttling over its body.

The spider's fangs are already sunk into the body of a Flesh Fly.



Supplement
August 2021

In association with



Photographic stories 2

Do you have the bug?

GREAT GREEN

10-12mm

This male nymph Great Green Bush Cricket is tiny. If it survives this summer and the next, it may reach maturity and become great.

An adult Great Green Bush Cricket is one of the largest insects in the UK, particularly the female.



In association with



Do you have the bug?

INULA *Inula hookeri*

In a matter of days, in the middle of the July heatwave, the clump of *Inula hookeri* burst into bloom and it became a magnet for the insects.

First up this Marmalade Hoverfly - *Epsyrrhus balteatus*



In association with



<https://stroud-nature.org/doi-you-have-the-bug-issue-3/>

Do you have the bug?

Supplement
October 2021

FENNEL

Monday 26 July.

Warm, but the day had been peppered with showers. One had not long finished. Now at 4.30 in the afternoon, the sun was out.

I guessed the insects would be too.

I could smell the aroma from the stand of fennel as I approached it.



In association with



Do you have the bug?

Supplement
May 2023

WILD CARROT

There is little doubt in my mind that the top flower for insects in the garden during the summer of 2022 was the Wild Carrot.

It was the first year it really began to thrive. The seeds were sown in the autumn of 2020. In the previous year the area of grass had been sown with Yellow Rattle. There was a minimal showing of smaller plants during 2021.

In 2022 - wow! They took off and so did the insects that visited them. This is a photographic record of some of them.

There were some surprises.

Download Bee-fly
One of four individuals that spent a month with us.



In association with



Do you have the bug?

Supplement
June 2023

STARS ON STRIPES

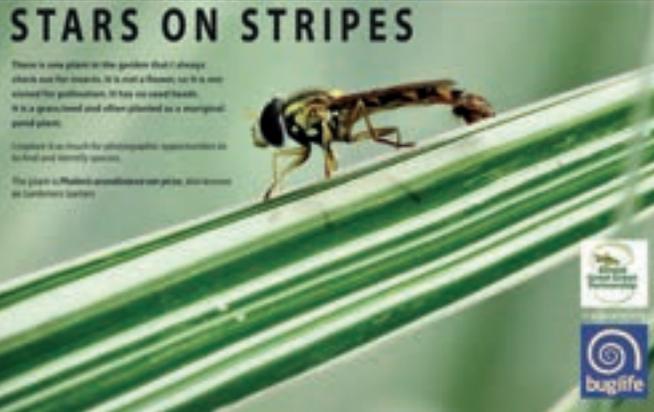
There is one plant in the garden that I always plants out for insects. It is not a flower, so it is not visited for pollination, it has no seed heads. It is a grass/reed and often planted as a marginal pond plant.

Complete it is a must for photographic opportunities on the field and nearby waters.

The plant is *Phalaris amabilis* and one price, also known as *Cardamine latifolia*.



In association with



Do you have the bug?

Supplement
August 2023

IN THE PINK

Flowering plants have evolved alongside insects, finding ways to attract them for pollinating and creating partnerships with particular species. Colour, scent and shape are the determining factors that have determined those partnerships.

These three things are evident in this selection of photographs.

The flower colour is pink (ish). Some are highly scented, even to our own noses and they come in a diverse range of size and shape.

Right: A leafcutter bee taking nectar from a Sweet Pea flower. Its long tongue enables it to reach the nectar.



In association with



Additional resources

Click on the images here to find out more about insects and other related topics

Classification of insects 1

This table shows how a Big-headed Wasp is classified beginning with which continent it lives on down to its individual species name.

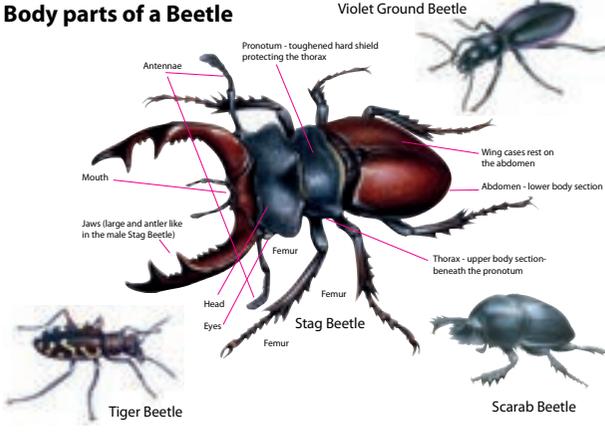
These are all written in latin

Domain (continent)	Eukarya (Europe)
Kingdom	Animalia (Animals)
Phylum	Arthropoda (Arthropods) <small>Arthropods have an exoskeleton (outer) made of chitin, segmented bodies and paired joint appendages (limbs)</small>
Class	Insecta (Insects) <small>All-breathing arthropods having the body divided into three parts (head, thorax and abdomen) and six legs</small>
Order	Hymenoptera (bees, wasps, ants and relatives)
Family	Sphecidae (Digger Wasps)
Genus	Ectemnius (Broad-headed wasps)
Species	Ectemnius cephalotes



How are insects classified into families and then by species.

Body parts of a Beetle



A look at the body parts of beetles

Wasp Beetle

Clytus arietis

Pollinator

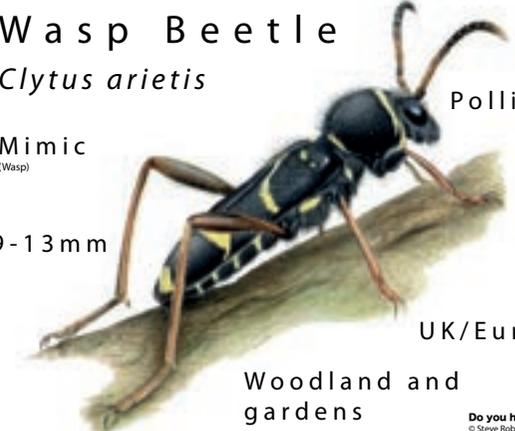
Mimic (Wasp)

9 - 13 mm

UK/Europe

Woodland and gardens

Do you have the BUG?
© Steve Roberts 2021



A series of illustrated species posters. Great for the classroom or study wall

Swollen-thighed Beetle

UK/Europe

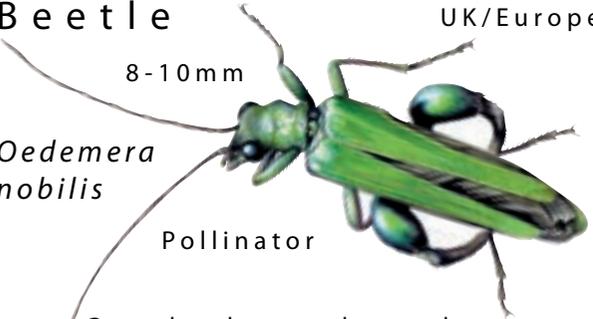
8 - 10 mm

Oedemera nobilis

Pollinator

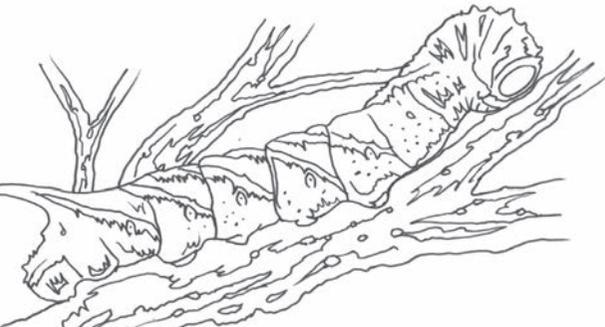
Grasslands, scrub, gardens

Do you have the BUG?
© Steve Roberts 2021



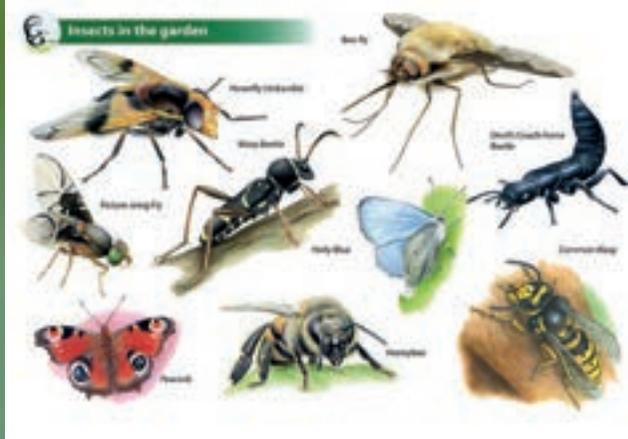
More illustrated species posters

Privet Hawkmoth (larva)



Colouring sheets

Insects in the garden



Insect poster

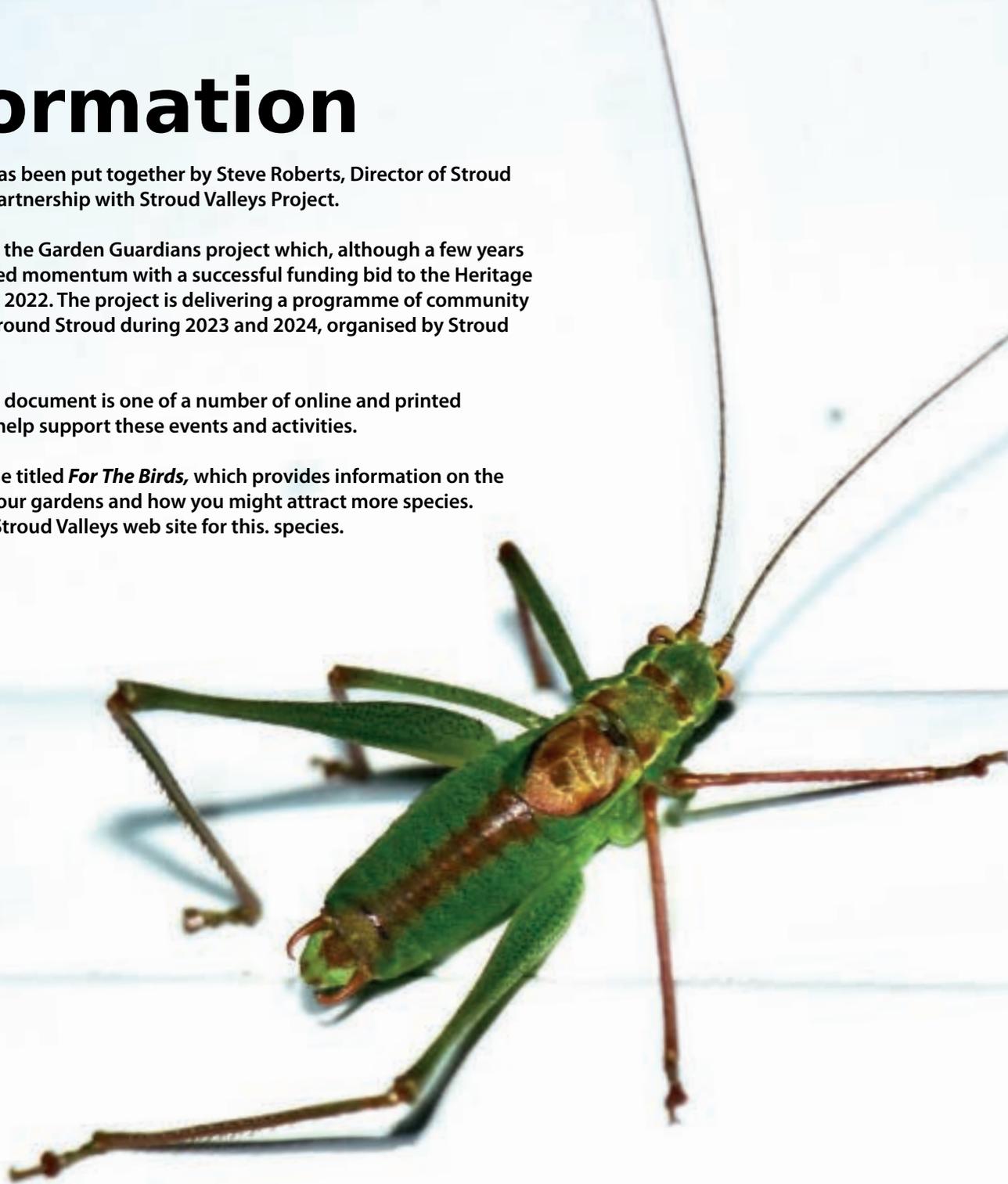
Information

This resource has been put together by Steve Roberts, Director of Stroud Nature CIC in partnership with Stroud Valleys Project.

It is one item in the Garden Guardians project which, although a few years old, really gained momentum with a successful funding bid to the Heritage Lottery Fund in 2022. The project is delivering a programme of community based events around Stroud during 2023 and 2024, organised by Stroud Valleys project.

This interactive document is one of a number of online and printed resources that help support these events and activities.

There is also one titled *For The Birds*, which provides information on the birds that visit our gardens and how you might attract more species. Check out the Stroud Valleys web site for this. species.



Stroud Valleys Project

8 Threadneedle St
Stroud
GL5 1AF

01453 753358

<https://www.stroudvalleysproject.org/>

Designed and illustrated by Steve Roberts
Footprint Design Stroud
www.footprintdesignstroud.co.uk