

The OPAL
Bugs Count Survey
Booklet



For more information and to submit your data
www.opalexplornature.org

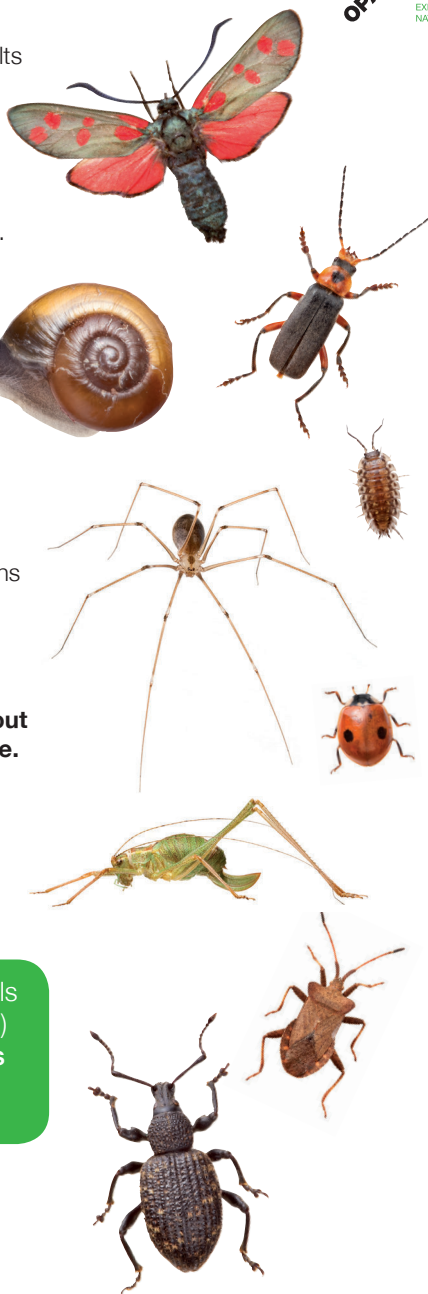
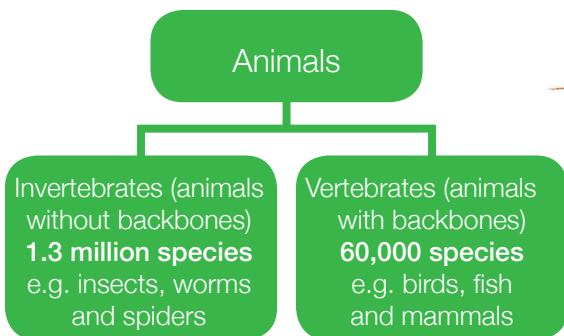
Introduction

By taking part in the survey and sending your results to us, you will help discover more about the incredible variety of invertebrates in the built environment. How many are there and where are they found? The survey results will also tell us which bug habitats occur in urban, suburban and rural areas, so we can see how they compare. It's a lot of fun, so get counting!

What are invertebrates?

Invertebrates – animals without backbones – are incredibly important and fascinating. They are a vital part of our wildlife and do all sorts of helpful things like pollinating many of our plants and recycling nutrients by breaking down fallen leaves. They provide food for other animals like birds, amphibians and mammals, and many are quite beautiful to watch if you take the time to stop and look.

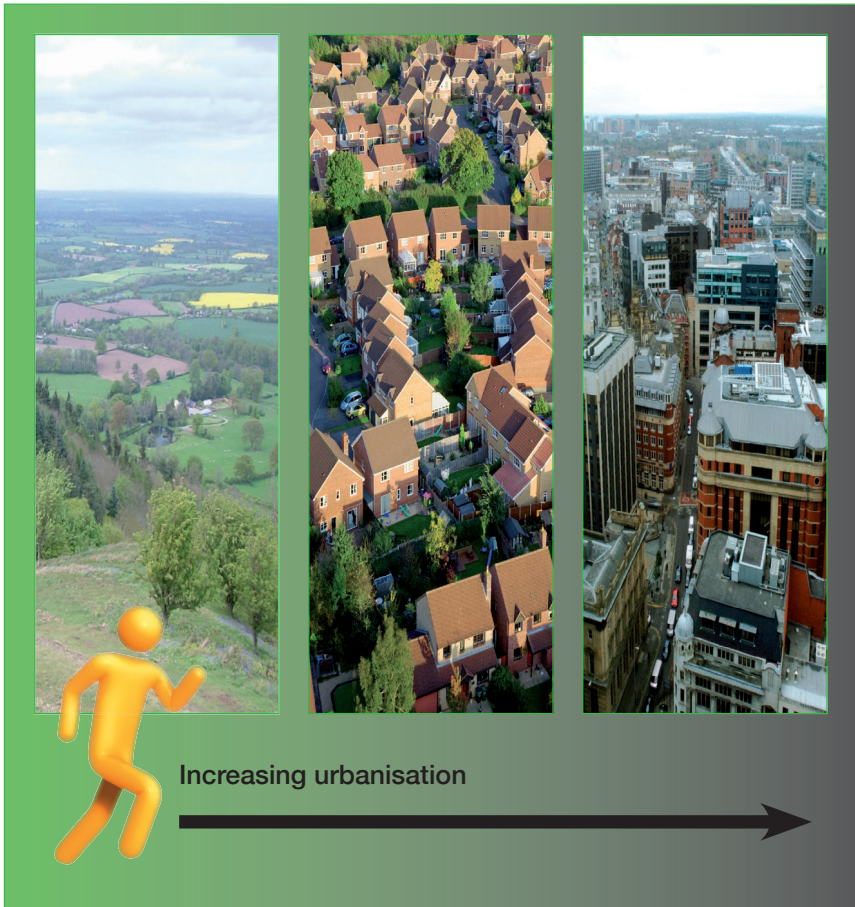
An incredible 96% of all known animals are invertebrates and they really do count... without them the world would be a very different place.



How are bugs adapting to a changing environment?

If you walk from the countryside through the suburbs of a large town or city and into its centre, you'll notice a lot of changes. It will look less wild with fewer grassy or planted areas, have more human-made hard structures like buildings and roads and more people.

Just like us, invertebrates are likely to be affected by these changes, yet we don't really know how. With the ever increasing spread of towns and cities, it has never been more important to find this out. This is where you can help by taking part in the Bugs Count Survey.



Survey preparation

The Bugs Count Survey will take between 30 minutes and an hour to complete. There are three parts to the survey:

- A** Explore your area (pages 7-8). Discover the different micro-habitats it contains and plan where to look for bugs
- B** Timed challenges (pages 9-14). There are three timed challenges. Each one is a hunt to find and identify as many invertebrates as you can in **15 minutes** – you could set an alarm so that you know when 15 minutes is up! The challenges can be done in any order.
 - **Challenge 1** – Hunt for ground-living invertebrates on **soft ground surfaces** like soil, short grass and among fallen leaves and twigs.
 - **Challenge 2** – Search for invertebrates on **human-made hard surfaces** like paving, fences and the outside of buildings.
 - **Challenge 3** – Look for invertebrates on **plants**, including long grass, flowers, shrubs and trees.

Species Quest. During the challenges keep a look out for the six bugs described on the **Species Quest Identification Guide** included in this survey pack.

Essential equipment to take outside with you

- The OPAL Bugs Count pack which contains this survey **Booklet***, **Invertebrate Identification Guide**, **Species Quest Identification Guide** and OPAL **magnifier**.
- A **pale-coloured collecting container** to catch invertebrates, such as a **dustpan and brush**.



- A **container** to put bugs in while you identify them.

3 * You can download more recording sheets from the OPAL website.



Useful items to take outside (if you have them)

- A map or GPS device
- A mobile phone (in case of emergencies)
- A camera



When you see this symbol, you can take a photo and upload it to the OPAL website

The best time to do this survey is late spring, summer and early autumn. It is really important that you send us your results. You can enter results at www.opalexplornature.org

How to identify your bugs

Use the **Invertebrate Identification Guide** to help identify bugs. Each page is colour-coded, just like the results tables in this booklet where you can enter your findings. You might find it easiest to put a bug in a jar while you identify it. Always put it back where you found it. Always identify the bugs as you find them *within* the 15 minutes (not afterwards). This is important for keeping your results comparable with the results from everyone else who takes part.



Safe fieldwork

- Take a responsible friend with you who can help if anything goes wrong. Make sure you both know what to do in an emergency and can call for help if necessary. Carry a fully charged mobile phone.
- Supervise young children at all times.
- Cover any open cuts. Wash your hands thoroughly afterwards.
- Don't try to turn over any heavy stones or logs, only those that you can easily lift. Always put them back the way you found them.
- Look out for stinging nettles, prickles and thorns.
- Look out for sharp objects, e.g. broken glass.
- Handle bugs gently – they are delicate, so only pick them up when necessary. If you put a bug in a jar to study it, don't keep it in the jar for too long, and don't leave it in the sun.
- Always put the bugs back where you found them.

More general safety information is available from Royal Society for the Prevention of Accidents www.rosipa.com/leisuresafety



Where to look?

You can do Bugs Count anywhere.
Make sure you have permission to be there.



In bushes



On climbing plants



In long grass



In compost



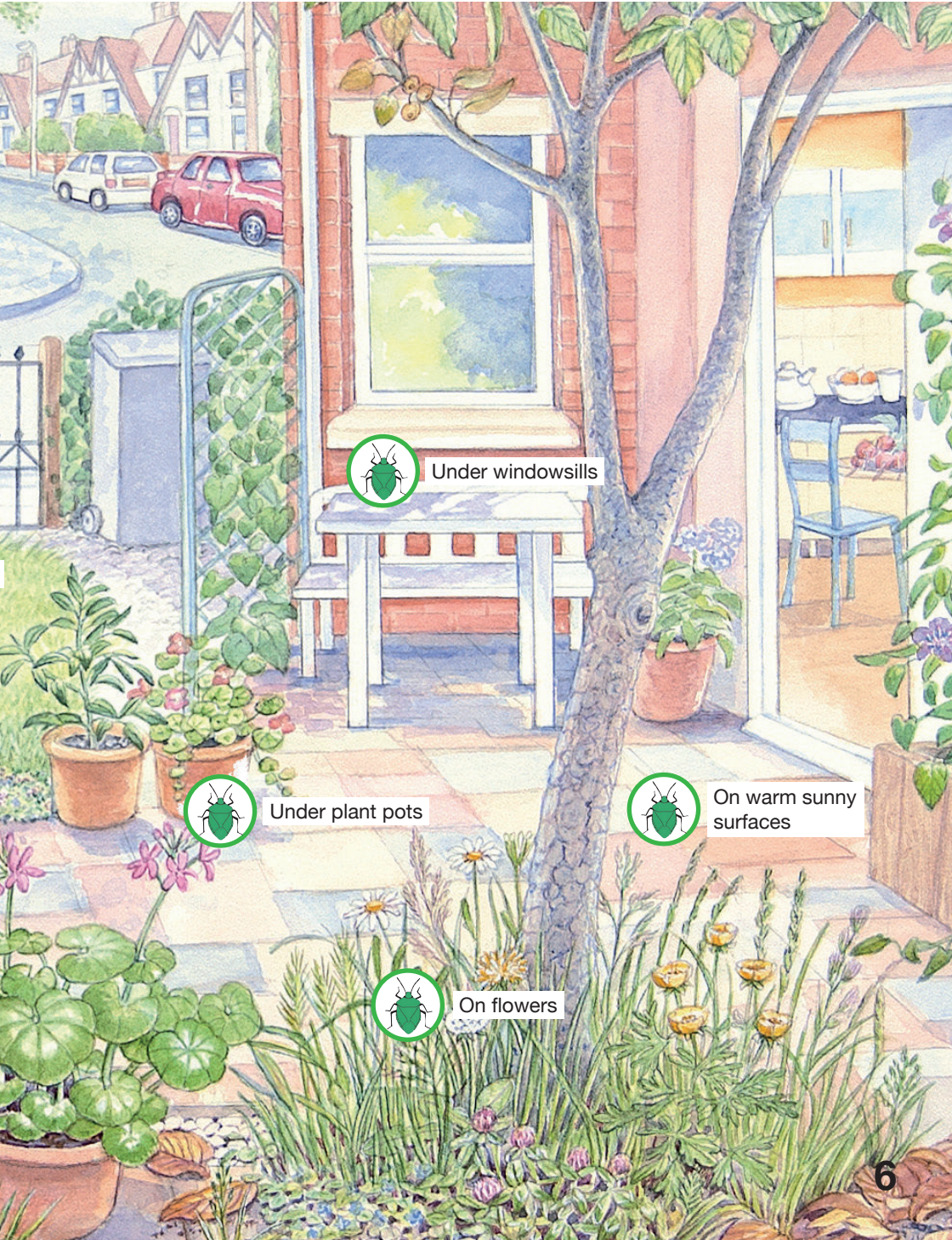
In soil



Under logs and dead leaves



This symbol indicates a good place to look for bugs. When the weather is good, bugs may be out sunning themselves, but at other times you may need to look a bit harder.



Under windowsills



Under plant pots



On warm sunny surfaces



On flowers

The survey starts here

A Explore your area

1. Today's date _____

2. Start time _____

3. Which of these best describes the weather at the moment?



4. Who are you doing the activities with today?

primary school	secondary school	college / university	youth group
adult volunteer group	family or friends	other	

5. How many people are in your Bugs Count survey team?

6. Have you identified bugs before? yes no

7. Record the location of your site (postcode / OS grid reference / GPS reading).

Further help is available on the [OPAL website](#) if you are unsure of the exact location.

8. Which of these best describes your survey area?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Garden	School or university grounds	Street or estate	Waste ground	Woodland	Grassland	Park

Other *please describe* _____

7 Next, describe the **micro-habitats** that your survey area provides for bugs to live in.



Habitats are living spaces that provide the resources needed for survival, like food and shelter. Bug habitats include grassland, woodland and gardens. Habitats can be broken down into smaller areas called **micro-habitats**, which are parts of the habitat that provide a particular resource. A pot of flowers, a compost heap, a pile of dead leaves or a rotten log can all be micro-habitats for invertebrates.

Most species need more than one micro-habitat to survive. For example, Small Tortoiseshell butterflies need stinging nettles for their caterpillars to eat, flowers to produce nectar for adult butterflies to eat, sunny areas to bask, and a sheltered place to hibernate over winter.

9. Which of these micro-habitats can you see within your survey area?

(a) Soft ground surfaces	(b) Human-made hard surfaces	(c) Plants
<input type="checkbox"/> Soil (e.g. flower bed, vegetable patch) <input type="checkbox"/> Short grass (shorter than 12cm) <input type="checkbox"/> Fallen or rotting leaves (leaf litter) or woodchip <input type="checkbox"/> Plant pots, large stones or rocks standing on soft ground surfaces <input type="checkbox"/> Dead branches or logs on the ground <input type="checkbox"/> Open compost heap	<input type="checkbox"/> Building (brick, wood, glass) <input type="checkbox"/> Brick or stone wall (e.g. garden wall) <input type="checkbox"/> Wooden fence <input type="checkbox"/> Paving <input type="checkbox"/> Wooden decking <input type="checkbox"/> Tarmac or concrete (e.g. pavement, playground) <input type="checkbox"/> Plant pots standing on hard surfaces <input type="checkbox"/> Play equipment	<input type="checkbox"/> Long grass (taller than 12cm) <input type="checkbox"/> Planted flower bed, pot or windowbox <input type="checkbox"/> Wild flowers or weeds (a wild patch) <input type="checkbox"/> Hedges <input type="checkbox"/> Shrubs <input type="checkbox"/> Trees <input type="checkbox"/> Climbing plants (e.g. ivy)

10. How much of your survey area is covered by hard surfaces?

none
 a little
 about half
 most
 all



B Timed challenges

Challenge 1: Search for bugs on soft ground surfaces

🕒 15 minutes

What to do



Start the clock! Search for 15 minutes on soil and short grass, among fallen leaves and compost for as many invertebrates as you can find.

Short grass means shorter than 12cm



Where to look

Soil & short grass



Try disturbing the top layer of soil. Look among short grass.

Fallen leaves



Put a few handfuls of fallen leaves in a tray then watch to see what moves.

Under things



Look underneath stones, pots or logs standing on soil or grass.



Identify the bugs using the [Invertebrate Identification Guide](#) within the 15 minutes. Look out for the Species Quest bugs.



Record the number of each type of bug that you find on the opposite page. If you can't identify it, record it as 'Other invertebrates'.



Take a photo if you see any of the Species Quest bugs and record how many you see.




||| Use tally marks

Number of legs	Type of bug	How many did you see?
0	Snails	
0	Slugs	
0	Earthworms	
6	Beetles	
6	True bugs	
6	True flies	
6	Bees / wasps	
6	Ants	
6	Butterflies / moths	
6	Crickets / grasshoppers	
6	Earwigs	
8	Spiders / harvestmen	
More than 8	Woodlice	
More than 8	Centipedes	
More than 8	Millipedes	
Hard to see	Insect larvae	
n/a	Other invertebrates	


Total number of bugs found

Species Quest




2-spot Ladybird

How many did you see?




Devil's Coach Horse

How many did you see?




Small Tortoiseshell

How many did you see?




Green Shieldbug

How many did you see?



Leopard Slug

How many did you see?



Tree Bumblebee

How many did you see?



Challenge 2: Search for bugs on human-made hard surfaces

🕒 15 minutes

What to do



Start the clock! Spend 15 minutes looking for invertebrates on all of the human-made hard surfaces in your survey area, like paving, fences and the outside of buildings.



Where to look

On buildings



Check under windowsills – a favourite place for spiders.

Under things



Look on paving and under plant pots standing on hard surfaces.

Sunny spots



Some bugs like to sun themselves on walls, fences and paving.



Identify the bugs using the [Invertebrate Identification Guide](#) within the 15 minutes. Look out for the Species Quest bugs.



Record the number of each type of bug that you find on the opposite page. If you can't identify it, record it as 'Other invertebrates'. You can also record spider webs.



Take a photo if you see any of the Species Quest bugs and record how many you see.



||| Use tally marks

Number of legs	Type of bug	How many did you see?
0	Snails	
0	Slugs	
0	Earthworms	
6	Beetles	
6	True bugs	
6	True flies	
6	Bees / wasps	
6	Ants	
6	Butterflies / moths	
6	Crickets / grasshoppers	
6	Earwigs	
8	Spiders / harvestmen	
More than 8	Woodlice	
More than 8	Centipedes	
More than 8	Millipedes	
Hard to see	Insect larvae	
n/a	Other invertebrates	

How many spider webs did you see?

Total number of bugs found

Species Quest



2-spot Ladybird

How many did you see?



Devil's Coach Horse

How many did you see?



Small Tortoiseshell

How many did you see?



Green Shieldbug

How many did you see?



Leopard Slug

How many did you see?



Tree Bumblebee

How many did you see?



Challenge 3: Search for bugs on plants

🕒 15 minutes

What to do



Start the clock! Search for 15 minutes for bugs among the plants in your survey area, including long grass, flowers, climbing plants and trees.

Long grass means taller than 12cm



Where to look

On leaves & stems



First use your eyes and magnifier only.

On flowers



Record flying insects you can't identify as UFIs (Unidentified Flying Insects).

On trees & bushes



Gently brush or sweep the plants to dislodge the bugs into your dustpan.



Identify the bugs using the **Invertebrate Identification Guide** within the 15 minutes. Look out for the Species Quest bugs.



Record the number of each type of bug that you find on the opposite page. If you can't identify a crawling bug, record it as 'Other invertebrates'. You can also record spider webs.



Take a photo if you see any of the Species Quest bugs and record how many you see.



|||| Use
tally
marks

Number of legs	Type of bug	How many did you see?
0	Snails	
0	Slugs	
0	Earthworms	
6	Beetles	
6	True bugs	
6	True flies	
6	Bees / wasps	
6	Ants	
6	Butterflies / moths	
6	Crickets / grasshoppers	
6	Earwigs	
6	Unidentified Flying Insects (UFIs)	
8	Spiders / harvestmen	
More than 8	Woodlice	
More than 8	Centipedes	
More than 8	Millipedes	
Hard to see	Insect larvae	
n/a	Other invertebrates	

Did you use a dustpan and brush? yes no

How many spider webs did you see?

Total number of bugs found

Species Quest



**2-spot
Ladybird**

How many did you see?



**Devil's
Coach
Horse**

How many did you see?



**Small
Tortoiseshell**

How many did you see?



**Green
Shieldbug**

How many did you see?



**Leopard
Slug**

How many did you see?



**Tree
Bumblebee**

How many did you see?





Send us your results

Upload your results to the OPAL website www.opalexplornature.org

For help with identification, please visit www.ispotnature.org



This activity is one of a series of nature surveys developed by the Open Air Laboratories (OPAL) programme to help you get closer to your local environment while collecting important scientific data. With funding from the Big Lottery Fund, our network of leading universities, museums and wildlife organisations has been developing citizen science activities since 2007 and our resources are available throughout the UK.



If you've enjoyed this survey, why not try another? You can find everything you need to get involved at www.opalexplornature.org/surveys

You can also see what your data has revealed so far and discover a range of ways to get more involved in studying the environment on our website: www.opalexplornature.org



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Wildlife Gardening Forum



LOTTERY FUNDED

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