

A close-up photograph of a person's hands, wearing a purple sweater, holding several earthworms and soil. The hands are positioned in the center-right of the frame, with the fingers gently cupping the worms. The background is a blurred green field. The overall tone is natural and earthy.

**join**  
our hunt

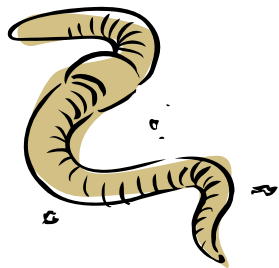
# Riverford's big worm dig

**Riverford**  
organic farms

healthy earthworms, healthy soil



# Riverford's big worm dig



The Big Worm Dig is a citizen science project run by Riverford Organic Farms to help scientists learn more about the health of the UK earthworm population and our soils. Joining in is fun and easy:

**1** learn about earthworms  
p. 3-5

**2** start worm hunting  
p. 6-7

**3** identify your worms  
p. 8-12

Make sure you upload your results to [www.riverford.co.uk/bigwormdig](http://www.riverford.co.uk/bigwormdig) when you have finished!

## why we love earthworms

Far from being slimy and insignificant, earthworms are hugely important.



### they help our veg grow

Worms eat leaves and other organic matter and incorporate it into our soil. They then work with bacteria in the soil to break down this material, making it easier for plants to absorb nutrients through their roots, and flourish.



### they protect our precious soil

Worms create burrows in the soil which allow rain water to percolate deeper underground. This helps prevent soil erosion and flooding during heavy downpours.



### they support other wildlife

Hedgehogs, moles, badgers, foxes and birds are just some of the animals that depend on earthworms as part of their diet. We often see buzzards snacking on them behind our ploughs.



### they are biologically fascinating

They breathe through their skin, often have five hearts, are hermaphrodites (both male and female at the same time) and produce baby worms from little cocoons (eggs) underground.

*there are more than 3,000 earthworm species worldwide, with approximately 30 found in the UK*

## where do worms live?

There are four places where different types of worms are typically found, and they all play an important role in the soil ecosystem. These are known as ecological groups.

### the composters

Live in very rich organic matter, most commonly in compost bins but also under cowpats etc.

eg. Tiger worms

### the litter dwellers

Live very close to the surface of the soil, under leaf litter or in rotting logs. Break down fallen leaves, surface vegetation and rotting wood.

eg. Marsh worm, Square-tailed worm, Gilt-tail worm

### the soil eaters

Make horizontal burrows in the top 15cm of soil and create a crumbly soil texture. Important for converting soil nutrients into a form plants can readily use.

eg. Blue-grey worm, Grey worm, Green worm, Rosy-tip worm

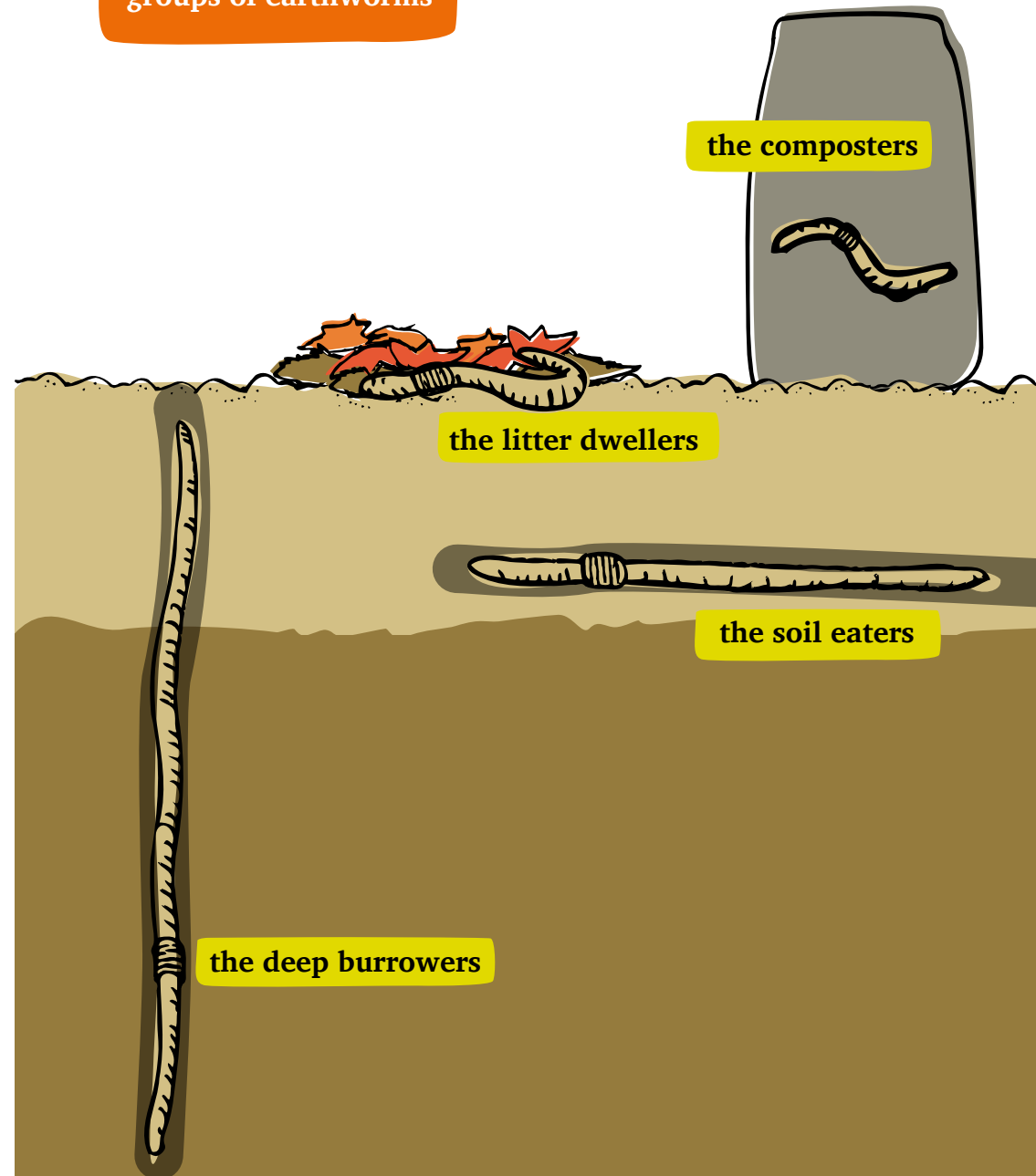
### the deep burrowers

Create vertical burrows down to 2m, into which they pull leaves and other organic matter from the soil surface. These burrows help create good soil drainage.

eg. Lob worm, Black-headed worm



there are 4 ecological groups of earthworms





## worm detecting

Find the best place to dig for worms with these clues to earthworm activity.



### dodge the dry areas

Worms need moist soil and will curl up and become inactive under dry conditions. For this reason you probably won't find them in dry or compacted areas of soil, so have a look in nice damp spots like under stones or plant pots.



### hunt for casts

Casts are essentially worm poo, in the form of small heaps of soil on the surface of the ground. Most worms produce casts in their burrows underground, but some eject them at the entrance of their burrows, a bit like how moles make molehills.

### look for middens

Middens are small collections of leaves, twigs or dried grass at the entrance to some earthworm burrows. These are made by the lob worm, which digs vertical burrows.

## how to dig for worms

# 1

Once you have chosen the best place to find earthworms (see opposite), use a spade to dig out a 30cm x 30cm square of soil, around 15cm deep. Place the soil on a plastic sheet or in a tray to make it easier to spot any worms that are present.



# 2

Sort through the soil, paying special attention to the area around plant roots - worms like it in there. Put any earthworms you find in a tub of cold water. Don't worry, they can breathe underwater! It will wash off any soil and make them easier to identify.



# 3

To collect deep burrowing worms, try pouring a mixture of 10g mustard powder in 2 litres of water into the hole you have dug. Worms may emerge as the mustard irritates them a bit (but doesn't harm them). Rinse in cold water and place in the tub.



# 4

Now turn to our identification key at the back of this booklet to identify your worms. Make sure you release them into a shaded, moist spot close to the hole you dug once you have finished.





## what's the survey for?

We want to help scientists find out how healthy the UK's earthworm population is.



### where will the results go?

Once we have collected enough results we will send them all for analysis by our earthworm scientists, Kevin and Chris.

We'll release the results later in the year, along with any advice they might have for helping maintain our UK earthworm populations.

### our earthworm experts

Dr Kevin Butt and Dr Chris Lowe are scientists from the Earthworm Research Group at the University of Central Lancashire. They specialise in studying the role of earthworms in soil ecosystems both in the UK and overseas; see [www.uclan.ac.uk/erg](http://www.uclan.ac.uk/erg) to find out more about their work.



### some things to remember before you dig

- get permission
- children should get help from an adult
- be sensible - tell someone where you are going
- wash your hands afterwards
- wear rubber gloves if you want
- try to choose a time when it has recently rained





# identify your worms

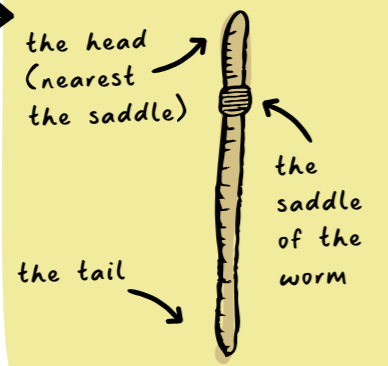
This key will help you identify which of the UK's 10 most common species of earthworm you have found. Record your findings overleaf and upload your results online.

**start here**

was your worm from a compost bin?

**no**

does your worm have a saddle?

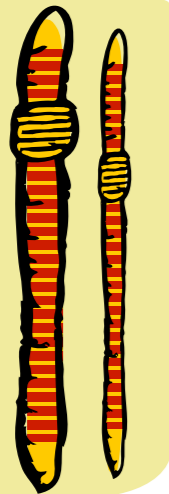


**no**

It's a juvenile (baby) worm. Add it to your count as a juvenile, and return it to the soil.

**yes**

It will most likely be one of two species of composting worm. Don't count them, there may be hundreds! We are less interested in these types of worm, so no need to record them.



look at the worm's size (in an adult's hand)



1. small/medium & dark red in colour

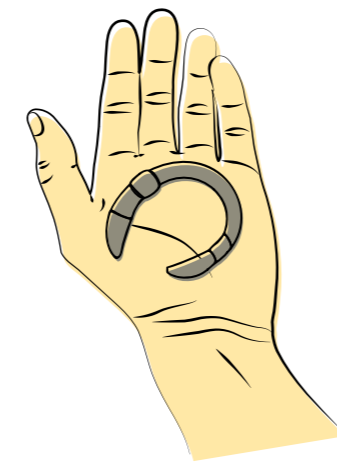
**yes**

which one of these 4 descriptions suit it best?


2. small/medium & light-coloured


3. large & light-coloured, with a yellow tail


4. large & dark-coloured





look at the worm's colour


- 


**Square-tailed worm**  
*Eiseniella tetraedra* - Mainly orange coloured, found in very wet soils
- 


**Gilt-tail worm**  
*Dendrodrilus rubidus* - Mainly red coloured with yellow tail end
- 

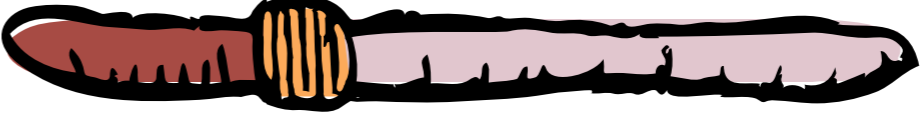
**Marsh worm**  
*Lumbricus castaneus* - Mainly red with white  $\infty$  shape underneath, near head end
- 


**Red worm**  
*Lumbricus rubellus* - Mainly red, very common
- 

**Green worm**  
*Allolobophora chlorotica* - This species may curl up in your hand when you pick it up and has a distinct yellow band near the head
- 

**Rosy-tip worm**  
*Aporrectodea rosea* - Mainly grey with pink head and orange saddle, thinner than the grey worm
- 

**Grey worm**  
*Aporrectodea caliginosa* - Mainly grey, with pink head followed by white band and pale saddle, very common
- 

**Blue-grey worm**  
*Octolasion cyaneum* - Violet with orange saddle and yellow tail tip
- 

**Lob worm**  
*Lumbricus terrestris* - Dark red head, often flat, paddle shaped tail
- 

**Black-headed worm**  
*Aporrectodea longa* - Very dark head, brown body, long and thin

example



If you have a worm that does not seem to fit here, you may have found something unusual. Send a picture to [worms@riverford.co.uk](mailto:worms@riverford.co.uk) and we'll get our earthworm scientists to identify it.

upload  
your  
results



## what did you find?

worm type	number of worms found (per hole)
Juvenile worms	
Square-tailed worm	
Gilt-tail worm	
Marsh worm	
Red worm	
Green worm	
Rosy-tip worm	
Grey worm	
Blue-grey worm	
Lob worm	
Black-headed worm	

We'll also need to know where you found your worms (eg. garden, field), your postcode and what method you used to find them (eg. simply digging or digging and mustard combined).

upload your results at [riverford.co.uk/bigwormdig](http://riverford.co.uk/bigwormdig)

## what is Riverford?

Farmer Guy Watson founded Riverford in 1986, and started delivering vegboxes to 30 local friends from the back of his 2CV.

### food-obsessed

We are organic farmers who champion good food and good farming. As well as our iconic vegboxes and meatboxes (47,000 delivered in England and South Wales every week), we also sell organic dairy, deli and bakery goodies.



### green (without the greenwash)

We believe that small scale family farms are the way to feed the world, with as many earthworms helping them as possible! We are also four time winners at the Observer Ethical Awards for our considered way of doing business.

**vegboxes, meat & more to your door**

visit [www.riverford.co.uk](http://www.riverford.co.uk) or call 01803 762059