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# Making friends with **molluscs**

Garden with slugs and snails



The  
**Wildlife**  
Trusts



**RHS**

# Show slugs some love

In a popularity poll of garden wildlife, slugs and snails probably wouldn't rank very highly. But do they really deserve such a bad reputation? There are about 150 species of slugs and snails in the UK, with even more including the ones in our seas. Only a small handful of these cause any problems for gardeners – and can we really blame those few for enjoying a tasty treat?

Slugs and snails are incredible creatures, bringing plenty of benefits to our gardens. It's time to give them a reputation makeover. Help us champion these magnificent molluscs. After all, who doesn't love an underdog?

Read on to discover even more reasons to love slugs and snails, as well as how to find a happy balance with them in your garden.

## Three reasons to appreciate slugs and snails:

### 1 They're nature's clean-up crew

Slugs and snails feed on rotting plants, fungi, dung and even carrion, helping recycle nutrients back into the soil.

### 2 They're a food source for other animals

Lots of other garden visitors snack on slugs and snails, including some of our most popular wild neighbours – from hedgehogs to song thrushes.

### 3 They're endlessly weird and wonderful

There are more fascinating facts about slugs and snails than we could possibly fit in this booklet – but we'll squeeze in as many as we can!

Snail © Tom Marshall

Cover image: Snail © Jon Hawkins/ Surrey Hills Photography

# Slugs vs snails

## A matter of shells

Slugs and snails, along with other animals including **conches** and **limpets**, are *gastropods*.

A gastropod is a single-shelled, soft-bodied animal in the **mollusc** group of animals.

Snails are classified by their hard external shell. Evolutionarily speaking snails came first, with slugs evolving multiple times from ancestor snails. Retraction is key – to be classed as a snail you have to be able to retract back into your shell.

The name gastropod comes from the Greek words *gaster*, meaning stomach, and *poda*, meaning feet. All gastropods have a muscular foot that they use to move around.

Believe it or not, **slugs** and **snails** both have shells!

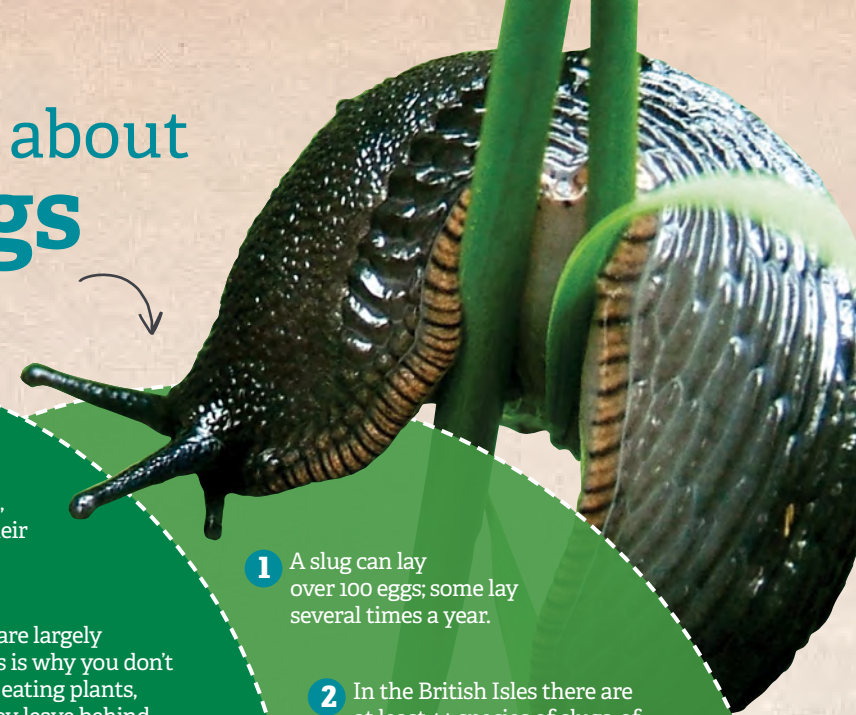
Slugs are also proud owners of shells. Slug shells are usually smaller than a fingernail. Sometimes this takes the form of a small plate carried on the tail tip, or under the back of their mantle, and sometimes the shell is just a few granules of calcium carbonate.

Large black slug © Nick Upton/2020Vision


Kentish snail © Jon Hawkins/ Surrey Hills Photography



# Facts about slugs



## Facts about both

- 1 There are around 100 species of land snail, many of which are only a few millimetres in size.
- 2 Snails are eaten as food in many places, but you can't go munching on your garden visitors – edible snails have to be specially bred to avoid parasites such as lungworm.
- 3 Have you ever heard of a semi-slug? Semi-slugs are snails with a full coiled shell that is too small for them to retract their body into completely.
- 4 Rather than burying themselves underground, some snails form a huddle and seal themselves into their shells over winter using a membrane called an 'epiphragm'. You might see them in sheltered corners of your garden such as under stacks of garden pots or in crevices in a stone wall.
- 5 Snails need calcium to build their hard outer shells. This means in calcium-rich habitats such as chalk or limestone you'll find more diversity of snails.  You can find out more about your soil type on the RHS website.
- 6 Roman snails are the largest land snails in northwest Europe, getting up to 4.5cm in length. That's about the size of a hen's egg! It's a protected species rarely seen in the UK.
- 1 Some species feed on algae and lichens and a few are predatory, for example feeding on worms.
- 2 Almost all slugs and most snails are hermaphrodites, meaning they have both male and female reproductive organs.
- 3 Many species do not feed on live plants but are detritivores, consuming dead plant material, fungi and dead animals.
- 4 Their blood (hemolymph) is pale blue/grey.

# Facts about snails



- 5 When two individuals mate, both can have their eggs fertilised.
- 6 Slugs and snails are largely nocturnal, so this is why you don't always see them eating plants, just the holes they leave behind.
- 7 Their eyesight is poor – food, moisture and potential mates are detected by smell and taste through tentacles, lips and the sole of the foot.
- 8 They have around 2,000-8,000 tiny teeth on a ribbon-like structure (called a radula) which they use to rasp food away, a little like a cheese grater.
- 9 Most poop and breathe from an opening on the right-hand side of their head.
- 1 A slug can lay over 100 eggs; some lay several times a year.
- 2 In the British Isles there are at least 44 species of slugs, of which only around nine are known to cause problems for gardeners.
- 3 Slugs hatch from eggs and do not have a larval stage.
- 4 Slugs like to feed on their favourite food first, then once these are all eaten go for their next favourite and so on... in the wild this shapes plant communities and in turn the other animals of that community.
- 5 Having a very small shell means slugs can squeeze through tiny gaps, and this is how they travel and hide underground.
- 6 Some species of slug are known to have a homing ability, based on smell and possibly memory.

Slug © Alan Price  
White-lipped snail © Nick Upton/2020 Vision



# Slug identification

Slugs can be very hard to identify!  
This is just a rough guide showing  
some of the slugs in the UK



Usually 40-50mm 	75-180mm  <small>Varies in colour - needs an expert to separate from large black slug and Spanish slug</small>	Usually 50-100mm 	Usually 50-70mm 	Up to 20mm  <small>More common in meadows</small>
<input type="checkbox"/> Threeband slug <i>Amigolimax spp.</i>	<input type="checkbox"/> Large red slug <i>Arion rufus</i>	<input type="checkbox"/> Green-soled slug <i>Arion flagellus</i>	<input type="checkbox"/> Dusky slug <i>Arion subfuscus</i>	<input type="checkbox"/> Hedgehog slug <i>Arion intermedius</i>
Usually 35-50mm 	Usually 70-130mm 	Usually 100-150mm 	Usually 20-40mm 	Up to 75mm  <small>Rare!</small>
<input type="checkbox"/> Netted field slug <i>Deroceras reticulatum</i>	<input type="checkbox"/> Green cellar slug <i>Limacus maculatus</i>	<input type="checkbox"/> Leopard slug <i>Limax maximus</i>	<input type="checkbox"/> Budapest keeled slug <i>Tandonia budapestensis</i>	<input type="checkbox"/> Ghost slug <i>Selenochlamys ysbryda</i>

Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2024

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Length listed in blue

# Snail identification

Snails can be very hard to identify!  
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some of the snails in the UK



9-12mm 	Up to 7.5mm 	Under 7mm 	20-24mm 	16-22mm 
<input type="checkbox"/> Two-toothed door-snail <i>Clausilia bidentata</i>	<input type="checkbox"/> Round snail <i>Discus rotundatus</i>	<input type="checkbox"/> Garlic snail <i>Oxychilus alliarius</i>	<input type="checkbox"/> Brown-lipped snail <i>Cepaea nemoralis</i>	<input type="checkbox"/> White-lipped snail <i>Cepaea hortensis</i>
Up to 40mm 	10-12mm 	11-14mm 	6-10mm 	11-14mm 
<input type="checkbox"/> Garden snail <i>Cornu aspersum</i>	<input type="checkbox"/> Girdled snail <i>Hygromia cinctella</i>	<input type="checkbox"/> Kentish snail <i>Monacha cantiana</i>	<input type="checkbox"/> Hairy snail <i>Trochulus hispida</i>	<input type="checkbox"/> Strawberry snail <i>Trochulus striolatus</i>

Illustration: Corinne Welch © Copyright Royal Society of Wildlife Trusts 2024

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Shell diameters listed in blue



# Benefits of slugs and snails

Slugs and snails are important members of our garden wildlife population. Not only are they a key food source for other creatures in the garden (more on that later), they also play an important role in your garden's life cycle.

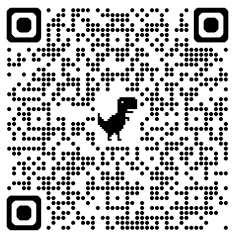
✓ Think of them as a free garden waste service! Detritivores (like the cellar slugs) are experts in nutrient recycling. They break down plant and leaf litter, returning nitrogen, nutrients, and minerals to the soil. They can do this in situ, making nutritious mulch on your beds, or in a compost heap.

✓ They can tidy anything! It's not just plant matter they enjoy; they clean up everything from mushrooms to dead animals and pool!

✓ Ever noticed snail trails on a greenhouse? Slugs and snails will eat the algae from greenhouse glass.

✓ Slugs can also play important roles in seed dispersal, with some plant seeds able to survive being eaten by slugs, then successfully growing after being deposited (pooped out!) in a different location. In some cases, passing through a slug has been shown to increase the success of germinating seeds.

✓ Territorial slugs such as leopard slugs can ward off other species of slug.



Leopard slug © Vaughn Matthews

# Slug-friendly control

✓ The best approach to slugs and snails is to plant the right plant in the right place! If you know you have a big slug population, it's best not to grow plants that are susceptible to slug damage. Learning to co-exist with your slimy neighbours is the most effective option.

✓ Grow your plants indoors for as long as possible before planting them out. Young, tender plants are the tastiest for slugs and snails!

✓ If you go out at dusk and spot a slug or snail munching on your prize plants, pick them up and put them on your compost heap. We don't advise moving slugs beyond your garden boundary as this can increase the spread of non-native species.



We do not recommend using pesticides on any wildlife in your garden. Slug pellets can cause harm to other visitors in your garden, such as worms, and may affect the slugs who were not eating plants anyway!

In a recent RHS study, principal entomologist and lead researcher, Hayley Jones, tested a number of traditional slug barriers around lettuce plants for six weeks.

The barriers she used were:

- crushed eggshells
- pine bark mulch
- copper tape
- sharp horticultural grit
- wool pellets

She found that none of them were effective by the end of the six week study period, but that doesn't mean you can't experiment to see what works in your space.

## Hayley says:

*"I've not given up on barriers yet, copper has worked in some studies and wool pellets may have a short-term effect. But eggshells aren't worth it, slugs and snails can make extra thick mucus to traverse anything sharp, and the source of calcium may actually be attractive to them!"*

Read the full findings of Hayley's research.



White-lipped snail © Guy Edwardes/2020Vision

# Welcome slugs and snails

# Living with slugs and snails

Grow climbers to provide more cooling shade.

Leave some plants to the slugs. They love sweet peas, tulips and dahlias.

If you've space, protect your most vulnerable produce in a glasshouse.

Grow seedlings to a larger size indoors before planting out.

Log piles and terracotta pot stacks offer shelter.

Bushes and dense foliage create shady spots.

Newly planted transplants can be covered with a cloche.

Ponds attract predators that help maintain a natural balance. They're also homes for pond snails!

WELCOME!

Longer grass stays cooler and damper.

Slugs are less keen on strong smelling plants like onions and herbs.

Pick slugs off produce at night and move them to the compost bin.



# Slug and snail hunters

When we look at a slug or a snail, it might not seem that appetising. But many of our wild neighbours see them differently. To a whole host of animals, they're a sumptuous, slimy delicacy. Let's take a look at a few of the slug and snail eaters you might meet in a garden!



## Ground beetles

There are plenty of beetles that feast on slugs and snails, including many of the ground beetles – also known as carabid beetles. *Carabus nemoralis* eats so many slugs it has been investigated as a natural way of protecting crops from them. *Carabus granulatus* pokes the front of its head into a snail's shell and uses its mandibles to tear out chunks. *Pterostichus melanarius* is known to follow trails of slug slime to find its prey.



## Song thrush

Song thrushes have a less subtle way of getting past a snail's shell. They grab the shell by the lip, take it to a rock or other hard surface and start to smash! The hard surface they use is known as an anvil – for obvious reasons. Song thrushes have favourite anvils, which they return to again and again. Listen out for their telltale strikes as they crack open the shells!



## Black snail beetle

As the name suggests, this predatory beetle is a snail specialist. It bites the snail on the back of the head, quickly paralysing it. Liquids from the beetle's mouth start to digest the snail, and the beetle slurps it up. As it feeds, it will push itself deeper into the snail's shell, sometimes almost disappearing completely. They don't rush their dinner – it can take more than 12 hours to eat a single snail.



## Amphibians

We think of frogs, toads and newts as water-loving wildlife, but adults spend a lot of their time on land. Here they hunt a wide variety of invertebrates, including slugs and snails. Newts have even been discovered climbing plants, possibly on the hunt for slugs.



## Hedgehogs

It is true that hedgehogs eat slugs and snails, but they only make up a small part of their natural diet. So a hedgehog-friendly garden needs to be packed with lots of other invertebrate goodies such as beetles, earthworms and millipedes too.

Get tips for helping them in our hedgehog booklet



Song thrush © Alan Williams/naturepl.com

# Help the hunters

## Invest in a beetle bank

Add an extra dimension to a flat garden with a beetle bank. Pick a sunny spot and heap up a 30cm tall mound of topsoil. Sow it with grass or wildflower seeds and let it grow long all summer. It'll provide a mix of sunny and shady spots for a multitude of minibeasts.

Find out more in our [Bring back our beetles booklet](#)



## Add an anvil

Make sure there's at least one nice flat stone in your garden that song thrushes can use for smashing snail shells. As an added bonus, other birds will visit thrush anvils to collect bits of broken shell – they're a great source of calcium!

## Log on

When it comes to encouraging beetles, dead wood is dead good. Build a log pile in your garden and you'll create the perfect shelter for a host of insects and other wildlife. You can get logs from tree surgeons or firewood dealers, just remember not to take them from woods or nature reserves where they're already a home for wildlife. Sink a few logs into the soil to make an even more interesting habitat.



*Carabus nemoralis* © Will Atkins



Frog © Mark Hamblin/2020Vision

## Make a splash

Adding water is one of the best things you can do to attract wildlife to your garden. If you don't have room for a great big pond, a mini-container pond can still be very effective. Birds will visit to drink and bathe, and you might attract breeding frogs or newts.

Learn more in our [Big or small, ponds for all booklet](#)



## Rough and ready

The easiest thing to do for nature is nothing! Take a break and let parts of your garden grow wild. Long grass is a hunting ground for beetles and amphibians. Fallen piles of leaves shelter insects and even hedgehogs. Standing seedheads give insects a spot to hide in over winter.

## Bush up

Trees and bushes offer birds a safe space to roost and nest. A mix of native trees and shrubs, like blackthorn, hawthorn, crab apple and rowan will provide food as well as shelter. If you can, replace a fence with a hedge to give flightless animals an easy access route to your garden.

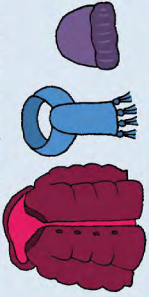


# Slug and snail safari



## You will need

- Warm, waterproof clothes

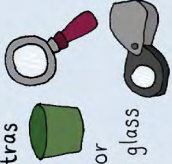


- A torch/head torch



## Optional extras

- A pot
- Hand lens or magnifying glass
- Slug/snail identification book



To identify a tricky slug, gently catch it and take it home to study. Store in a container with tiny holes for air, some leaves as food, and some moist tissue paper.



- 1 Pick a mild day with rainy or damp weather (slugs hate weather where they dry out quickly).
- 2 The best time to look is 1-3 hours after sunset, or early morning when it's still dark.
- 3 Look under logs, pots and plants, in compost heaps, curled up leaves and any cool, wet areas.
- 4 Slugs are very tough to identify! Just enjoy finding them and trying to see different looking ones.
- 5 Slime colour can help identify some species. Gently dab the back of your slug with some white tissue to see what colour the slime is.
- 6 Once you've had a go at identification, release the slugs and snails back to near where you found them. Remember to wash your hands after touching them.



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# Make a welcome sign



## You will need

- A flat piece of wood, slate or any suitable material
- Something to write with. Use up old pens/paints. If buying new ones, look for eco-friendly options.
- Sandpaper (if you're using wood)



- 1 Choose your material! You could use wood, slate, chalkboard or anything else that inspires you.



Are there any old things lying around your house or garden you could recycle as a sign? Empty containers, broken pots – even stones could work.



- 2 If you're using wood, smooth any rough edges with some sandpaper.



- 3 Decorate your sign. Write or craft a welcome message to slugs and snails. Bring it to life with art. Get creative!



- 4 Place the sign in your garden, to show that you welcome nature's clean-up crew.



This is all about showing your support for these garden underdogs.



[www.wildaboutgardens.org.uk](http://www.wildaboutgardens.org.uk) Pledge your support for slugs and snails here

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# About us



wildaboutgardens.org.uk

The Wildlife Trusts and the RHS created 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 is on a mission to restore a third of the UK's land and seas for nature by 2030. We believe everyone, everywhere, should have access to nature and the joy and health benefits it brings. No matter where you are in the UK, there is a Wildlife Trust inspiring people about nature and standing up for wildlife and wild places. Each Wildlife Trust is an independent charity formed by people getting together to make a positive difference for wildlife, climate and future generations. Together we care for 2,300 diverse and beautiful nature reserves and work with others to manage their land for nature, too. You can help us bring wildlife back in abundance by becoming a member of your Wildlife Trust today.

**Email:** [enquiry@wildlifetrusts.org](mailto:enquiry@wildlifetrusts.org)

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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:** [membership@rhs.org.uk](mailto:membership@rhs.org.uk)


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