

## Wild about MARCH

Male snipe start to perform their courtship displays.



Yellowhammers come into breeding plumage.



On damp, drizzly evenings toads may be on the move.



Seek our true wild daffodils.



White-fronted geese prepare to leave our shores.



### THINGS TO SEE

## Dark-edged bee fly

This stunning ginger-bodied fly, with its dark-edged wings and straw-like proboscis, might be heard hovering before it is seen. It pollinates spring flowers such as primrose, violets and lungwort – and is a master of mimicry. Bee-flies are barely noticed, flicking their eggs into the burrows of ground-nesting bees, where their young hatch and consume the bee larvae.



### BOOKSHELF

## Go Toxic Free

by Anna Turns, £14.99

Chemicals can harm habitats, water and wildlife; so make 2022 the year to de-pollute our lives. Author Anna Turns has this fantastic book full of tips to make a cleaner switch and reduce our toxic load on nature. Here's her top five ways we can all help reduce chemical pollution.



- **Join the dots.** Think about how something has been manufactured and how it will be disposed. Where will it go once you've finished using it? Use smaller dollops of products wherever possible.
- **Reduce your toxic load.** Chemicals are used in every room of your house and garden. By assessing the products you use, one by one you can make small changes that dramatically reduce your toxic footprint.
- **Ask more questions.** Be curious about labelling. Request information from manufacturers, look for proof of claims, ask for full ingredients lists if they're not available. Hold companies to account publicly via social media, write letters or emails, or sign up to campaigns.
- **Stay vigilant.** Be aware of greenwash and avoid the common pitfalls. Some things are just clever marketing ploys. Download an eco-shopping app so you can quickly decipher labels, verify claims and make informed choices.
- **Price vs value.** If something is cheap, someone or something else is paying for it somewhere. Invest more in things that will last – in short, buy less but buy better.

### TINY & WILD ROSS PIPER

## Going underground

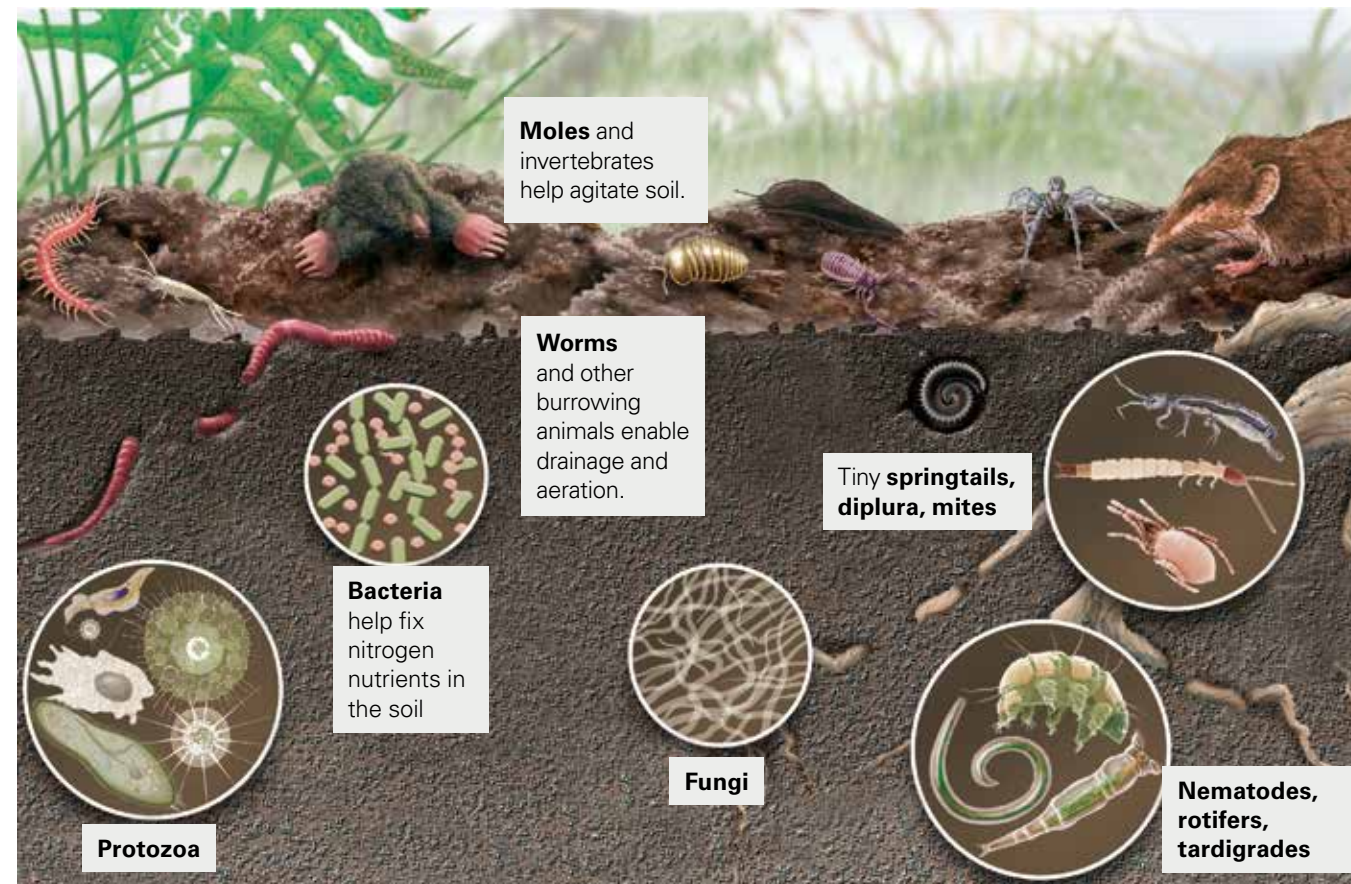
Delve into the secret, life-giving world of the soil biome.

Of all the varied habitats on land, the soil gets the least attention by quite some margin. Most often, soils are merely regarded as passive substrates, and we forget that they're intricate habitats absolutely teeming with life. They are also crucial to all life on Earth, as they're an intrinsic part of the many biogeochemical processes that make the Earth a living, self-regulating world. And, to state the obvious, most of our food depends on soils one way or another.

Have a rummage around in the soil in your garden and if you look carefully you'll see an astonishing range of living things. Of course, there are the

larger beings such as earthworms, the doyens of this biome, but beyond them is a dizzying array of animal life – from insects of every stripe, a kaleidoscope of mites and a cast of other, secretive arthropods, such as two-pronged bristletails, springtails and proturans. Zoom in still further and there, navigating the tiny, labyrinthine spaces in the soil, is a constellation of tiny animals, such as rotifers and tardigrades, many of which are smaller than single-celled organisms.

Perhaps the unsung animal heroes of the soil biome are the nematodes as they abound in such huge numbers. In a single



**Moles** and invertebrates help agitate soil.

**Worms** and other burrowing animals enable drainage and aeration.

**Tiny springtails, diptera, mites**

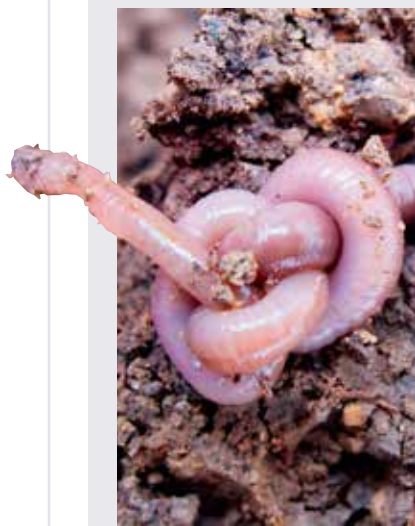
**Bacteria** help fix nitrogen nutrients in the soil

**Fungi**

**Nematodes, rotifers, tardigrades**

**Protozoa**

### WINTER WORMS




The soil gives its denizens a degree of insulation during the winter, when the temperature of the soil just a few centimetres below the surface will be warm enough to allow many of its inhabitants to remain active. If the temperature really plummets, the animals may descend further into the soil and enter a dormant state, like this earthworm that has knotted itself into a ball to see out the worst of the cold weather. Earthworms may also do this during droughts.

acre of farm soil there may be anywhere between three and nine billion nematodes. Indeed, it has been estimated that the total biomass of nematodes in surface soils across the globe is around 300 million tonnes, which is very probably a gross underestimate. In moving through the soil, eating decaying matter and other soil organisms, getting eaten themselves and suppressing and causing plant diseases, nematodes channel huge quantities of material and energy through the soil. Many of these soil animals are beautifully adapted for a subterranean way of life. The worm body plan comes into its

own here. A long, thin form is excellent for burrowing and navigating the tiny channels and spaces in the soil. Many soil animals have dispensed with eyes as they're useless in the complete darkness of this subterranean world. Likewise, pigments that provide protection against the sun's rays have also been lost and most soil-dwelling animals are pallid, translucent beasts. Some animals that actively burrow through the soil have converged on surprisingly similar adaptations, such as reinforced heads and strong limbs for powerful tunnelling. In animals as distantly related as moles, mole crickets and certain

ground beetles we can see these same adaptations. Nearly everywhere you go on land there are soils and we tend to view them as something that can be used and abused. Soils are actually vanishingly thin on a geological scale, only a few tens of metres deep, often much less. Yet we subject this living layer of the Earth's crust to an awful lot of punishment. The persistent growth and intensification of agriculture sees the soil compacted, ploughed and doused with a cocktail of soil 'improvers', pesticides and fertilisers. Combine all of this with climate change and it's quite a recipe. At best, this onslaught

upsets the delicate balance of the soil. At worst, it sterilises it. Every year, erosion washes millions of tonnes of soil from the land into rivers, lakes and the sea. Soil doesn't just form overnight. In most cases, the soils we depend on have formed over thousands of years, the product of chemical processes and countless organisms breaking down organic matter and bedrock.

 **Dr Ross Piper** is an entomologist, zoologist and explorer. His book *Animal Earth* is a cutting-edge introduction to animal diversity. Find out more at [rosspiper.net](http://rosspiper.net)