



A polyculture veg bed at Ourganics near Dorchester, Dorset. Here diverse planting including veg, flowers and herbs helps to confuse pests, crowd out weeds and looks great too.

Permaculture solutions

Want to make your garden even greener? Aranya shows *Kitchen Garden* readers how permaculture can help



Have you ever wanted your garden to be really productive, yet easy to manage? To see it full of wildlife, but still producing plenty of healthy food for you and your family? An impossible dream? Not at all. Nature's figured it out and permaculture shows us how.

Life's abundant, thriving in virtually every corner of the earth. It does this by adapting to local conditions, creating great diversity and many inter-dependencies. This gives natural ecosystems a resilience that we rarely see in our modern gardens and farms; nature still has much to teach us about feeding ourselves sustainably.

Firstly, permaculture emphasises the importance of becoming familiar with our surroundings, of observing and learning from nature's successes and failures. This is why I think we should all learn gardening at school; it trains us to really notice what's going on out there, often starting with a hunt for the creatures that ate the plants we put out yesterday.

Familiar? That's because many of our gardening habits are completely unnatural. Think about it, if they were long-term successful strategies, natural ecosystems would look a lot more like our gardens do – which they don't.

So what does a nature-inspired garden look like? Well, firstly it has balance.

Do you dig it?

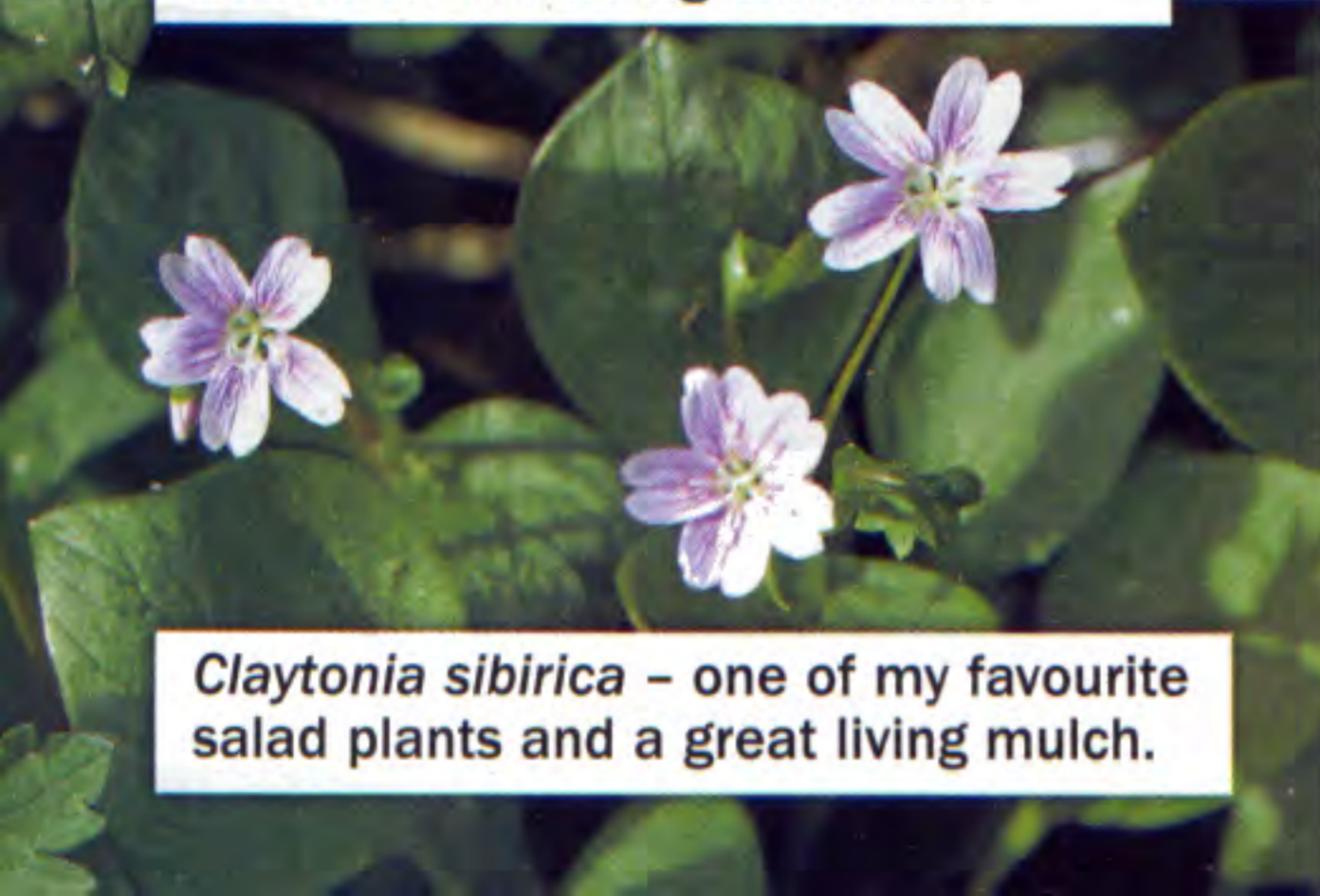
Healthy soil is an amazing thing, teeming with life. These organisms, many of them microscopic, cultivate the earth and create the fertility plants need to be healthy. Everything lives where it can obtain food and close to others that feed on its wastes. When we dig we upset this balance. Many aerobic micro-organisms living near the surface, which decompose organic matter, are buried and suffocate.

Those living around plant roots are killed by UV exposure. Of course plants enjoy a flush of fertility as these organisms decompose, that's why we do it, but it's like taking all your savings out of the bank and going on a spending spree. The effect is shortlived; we can't have sustained fertility without life. In addition, the decomposition of these dead organisms releases CO₂, making plough agriculture responsible for a third of all greenhouse gas emissions.

Then there's the physical damage we cause by digging. We've all accidentally cut earthworms in half, but despite being told as children 'it's okay, they'll grow another half back' or 'now you've made two worms', neither are true; they just die. Not good. The bacteria in their guts perform a vital role in turning organic matter into soil. Darwin considered them the most influential creatures that ever lived on earth. So yes the soil needs cultivating, but in small amounts on an ongoing basis and the job is already being done perfectly well.



Worms are essential to the health of our soil and despite popular belief, do not survive being cut in half.



Claytonia sibirica – one of my favourite salad plants and a great living mulch.

We often dig to clear ground of weeds, but why are we so obsessed with bare earth when we rarely see it in nature? Exposed soil is vulnerable to UV damage, oxidation of organic matter and wind and water erosion. Weeds are nature's band-aid, covering bare ground quickly and repairing its structure at the same time. Soil is often full of weed seeds, but germinating conditions will determine which of these will grow. A compacted soil will become covered by plants with strong tap roots like dandelions, whereas over-aerated soils will grow plants like nettles with a fine root hair structure designed to hold the soil together. If we wish to avoid weeds, we should take care of the soil by covering it as nature does, with plants that we do want.

So consider your reasons for digging. There may be times when you decide it's worth the effort and the short-term damage, but more often a natural approach will mean less work for you and healthier plants and soil.



Autumn leaves – nature likes to cover up.

It's a cover up

If your garden soil is already exposed to the elements, you can help by covering it. The best mulch is a blanket of living plants and we can establish one quickly by sowing a cover crop or green manure that we can later cut and mulch on the surface rather than dig in. The species you choose will of course depend on local conditions. One of my favourites is pink purslane (*Claytonia sibirica*), a vigorous self-sowing shade-lover with edible leaves, good in a salad.

In the winter, soil is usually covered with a layer of rotting vegetation. This is food for the soil life so even small additions of organic matter can be to great effect. We can mulch with any number of things, each with their own benefits.

Cardboard is of course an abundant resource in urban areas, but most useful are the big sheets discarded by bicycle and white goods shops. One lesson I learned though was not to skimp on quantity. When establishing a garden on a meadow a few years ago, I was at first a little too sparing with cardboard. Those early beds always had more couch grass coming through than the ones I made more thoroughly later.

Plastic sheeting is another effective barrier mulch, but won't feed your soil. Personally, I avoid it as it comes from oil and isn't biodegradable. This may have seemed like a good idea to start with but it's important that things do decompose because this creates the raw materials for new life.



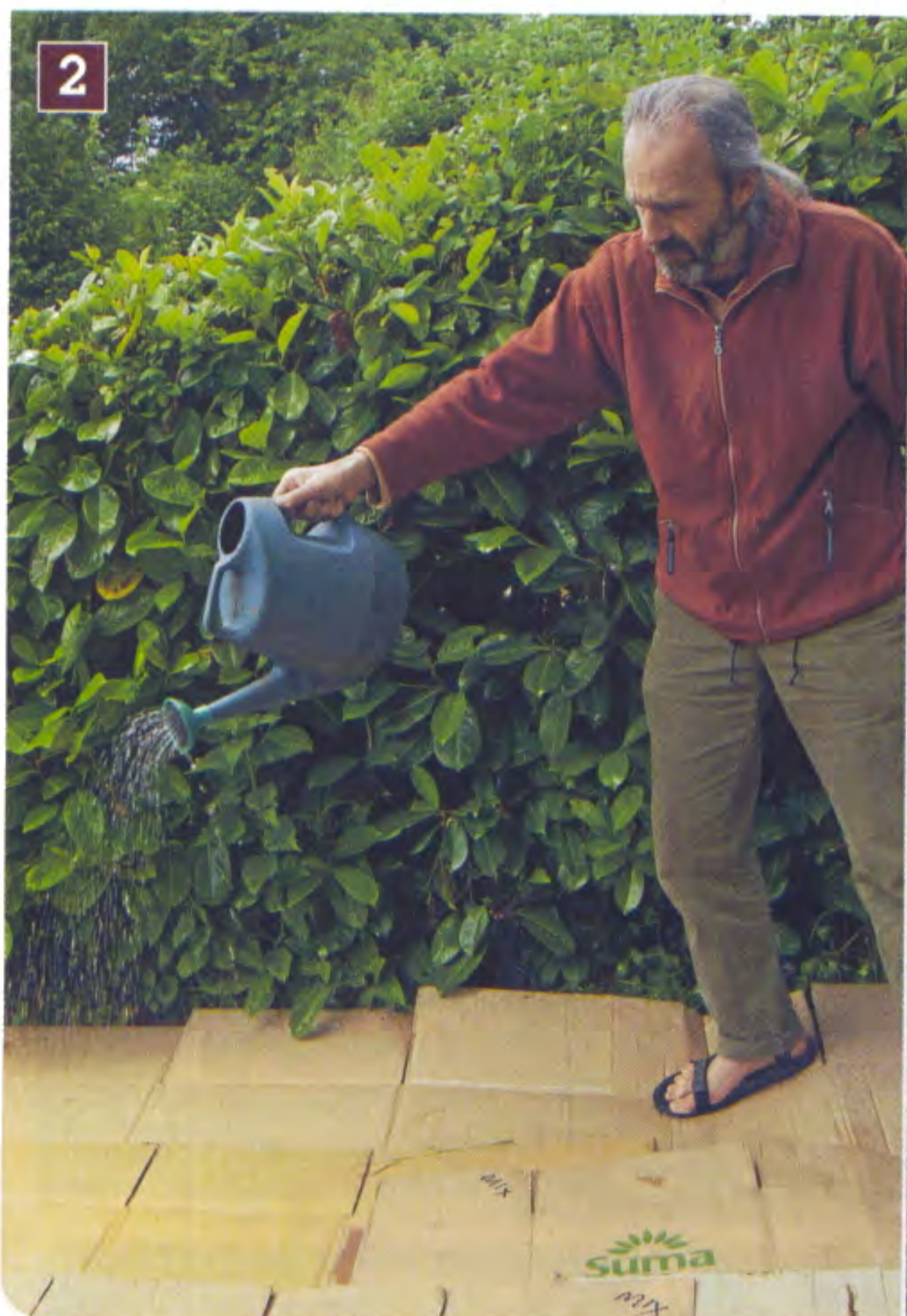
A selection of mulching materials. Of course you'd need a fair bit more than this to cover any significant area.



Ducks on duty. Taken at Ourganics, a permaculture-based market garden in West Dorset where they form part of the snail and slug control system.

CONVERTING TO PERMACULTURE – STEP-BY-STEP

1. Having cut back any vegetation such as long grass and laid it down over the area, spread a layer of compost prior to covering with cardboard.
2. Next soak the cardboard to keep it from blowing away and to encourage rapid decomposition.
3. Pour another layer of compost on to the cardboard. This acts as a weight in addition to adding fertility. Scatter some comfrey leaves over this to add more fertility.
4. Spread straw to cover the cardboard. This is partly aesthetic and partly for further longer term feeding. Finally spread wood chips over the top to add further weight.



Being bugged?

Our gardens are usually bounded by a fence, keeping out large creatures and letting in small ones, who find there a safe haven from many of their predators. That means more hungry vegetarians among our crops...

It could be said that you don't have a slug problem – you have a duck or frog deficiency.

A garden pest is simply a species without sufficient control on its numbers. If we remove their natural predators, then managing their populations becomes work for us. And anyone who's been out every night with a torch looking for slugs knows exactly how much work that is.

The permaculture approach is to consider who already wants to do this particular job and call in their help. If you have the room, chickens or ducks are a good way to control slugs and snails, alternatively put in a pond to encourage the assistance of frogs. A pond will also attract flying insects, which will in turn bring birds and bats that like to feed on them. Bats also munch on moths, including the

codling variety that lays eggs in your apples. Put up a few bat boxes to give them somewhere to stay and you've the beginnings of an Integrated Pest Management (IPM) system. Are you getting the idea?

Importantly, the basis of such strategies is not one of exploitation, but co-operation. These creatures benefit as much as we do from the deal. Gift your local birds of prey with a high pole and they'll thank you by controlling the rodents that nibble the tomatoes and Brussels sprouts on your allotment.

Another big reason our gardens are often 'plagued by pests' is our insistence on growing large numbers of the same plants together. Firstly, this provides them with an abundant food supply, which will encourage them to breed. Contrast this with a garden that mimics natural ecosystems; a diverse collection of plants growing together makes it difficult for those pests to find the next meal among the diversity of colours, shapes and smells.



Cardboard and straw mulched loganberry – growing very happily in Aranya's garden.



Limnanthes douglasii – a great bee and hoverfly attractor.

Everybody needs good neighbours

These plant collections aren't just randomly scattered either (though if you have enough land and seeds this can be a great way of finding out where plants prefer to be and which grow best together). Permaculture encourages us to combine mutually supportive plants into guilds. South American farmers have long used this technique to grow the 'three sisters' of corn, beans and squash together. The

corn provides a structure up which the bean can climb, the bean fixes nitrogen for the guild and the squash covers the ground to protect the soil and reduce evaporation.

We can create locally adapted combinations wherever we are; a good starting point being combining a nitrogen-fixer, such as a bean or pea, with a nitrogen-lover like a brassica. Add another that attracts pest predators or helps prevent disease in some other way, such as poached egg plant (*Limnanthes douglasii*), which attracts hoverflies, whose larvae eat aphids, and you're most of the way there. Companion planting books can help by giving us starting points, but remember that each author's recommendations are based on observations of their own unique garden ecosystems. The only way you'll ever discover the best combinations for your own plot is by experimenting.

Make the most of every opportunity

Permaculture shows us how to make the most of microclimates and of space by stacking plants vertically. It helps us get the most from our gardens, perhaps growing high-value perishable crops like salads. We can all grow more of our food without it taking over our whole lives. So finally, start small and keep tasks achievable, as those small successes motivate us to do more.

For information about permaculture courses:
www.designedvisions.com

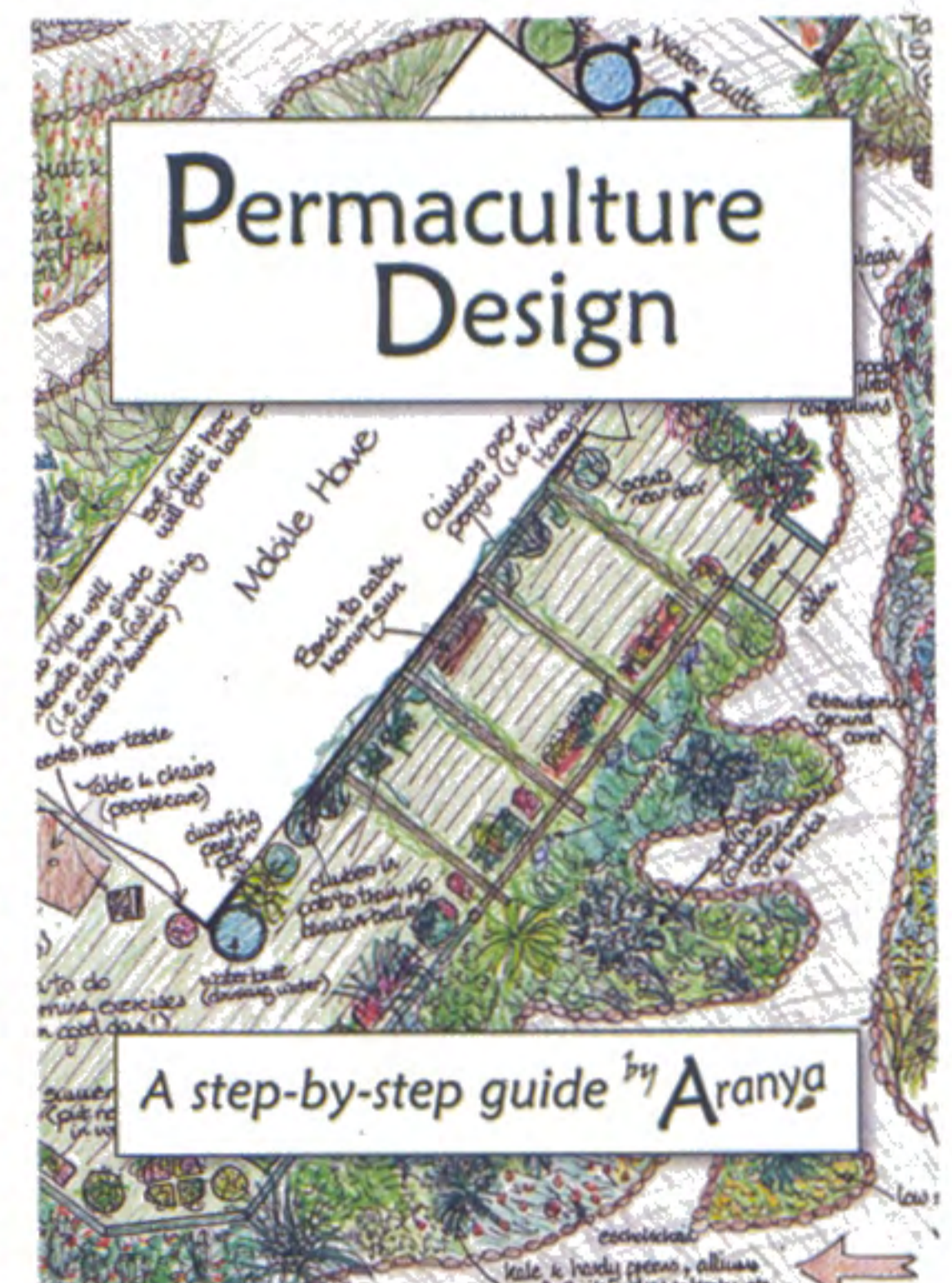
**MORE
INFO**

SAVE 25% ON ARANYA'S NEW BOOK

If you have been inspired to have a go at gardening Aranya's way then you will want to get hold of his new book *Permaculture Design – A Step-by-Step Guide* by Aranya.

This is a useful book of permaculture design methods that backs up the courses that Aranya teaches and will help you put the theory of permaculture into a practical situation.

Kitchen Garden readers can buy the book postage and packing free for £10.95 that is a saving of £4. The book can be bought online at www.green-shopping.co.uk or phone 01730 823311. Quote the offer code KGPDS. Offer ends April 30, 2012.



This toad is a resident of Aranya's garden and spends its time mopping up pests.

Permaculture emphasises the importance of becoming familiar with our surroundings, of observing and learning from nature's successes and failures.