

# The Vegan Book of Permaculture

GRAHAM BURNETT





This book is about practical, ethical, and compassionate approaches to life, a handful of beautifully crafted common sense. It is an inspirational gift to humanity that can liberate you. It can shake you up, wake you up, and raise your consciousness. Some of us try hard to do the best for ourselves, our families, our animals, and our planet. Sometimes we need help. Here is help. After reading this book I didn't just think, yes I can, I said, yes I will.

BENJAMIN ZEPHANIAH

Poet, writer, lyricist, musician and trouble maker

Long time permaculture practitioner and activist Graham Burnett has written a very practical guide to living lightly using permaculture design within the ethical constraints and opportunities of a vegan diet. Based on lived experience rather than ideology, the strong focus on food, complete with recipes, helps vegans and omnivores alike make better use of the diversity of plant based ingredients in cool temperate climates. For vegans wanting to reduce their ecological footprint, maintain nutritional balance and increase their autonomy and resilience in a rapidly changing world, this book is the ideal introduction to permaculture living and land use.

DAVID HOLMGREN

Co-originator of the Permaculture concept

Hugely inspiring and fantastically useful. I love the mix of Graham's cheerful tone, quirky pictures and hard-won experience. The book will interest anyone seeking to live more enjoyably and with greater autonomy whether vegan or not.

TOM HODGKINSON

Author of *How To Be Free* and founder of The Idler Academy

In his inimitable maverick fashion, Graham Burnett has jumbled together the pragmatism of Permaculture with the DIY ethos of punk, and come up with an essential and practical guidebook for anyone even remotely interested in the true nature of cultural (r)evolution.

PENNY RIMBAUD

Performer, philosopher, writer, and founder of the band/collective, Crass

This wonderful book is full of fascinating new things to learn and old things to remember. Wherever you live, even in cities, nature is there breaking through, and with a little nurture will thrive and provide beauty, food, a sense of joy and some hard manual work!

EVE LIBERTINE

Crass vocalist and co-founder of Butterfields Green Community Orchard

Wanting to create ways of living that respect, protect and enrich the awe-inspiring diversity of life and culture on Earth is one thing; actually setting about doing it is quite another. In *The Vegan Book of Permaculture*, Graham Burnett gives you many of the practical tools you need to live in a healthy, connected relationship with both the human and non-human world around you.

MARK BOYLE

Author of *The Moneyless Manifesto*

Graham has put together a wise, concise and accessible guide useful for both experienced and those fresh to permaculture and veganism. The recipes are so vibrant you can almost taste them on the pages!

LOOBY MACNAMARA

Permaculture teacher and author of *People and Permaculture* and *7 Ways to Think Differently*

Graham Burnett is indubitably the Godfather of London Permaculture.

STEFAN GEYER

Chair of Permaculture Association and host of 21st Century Permaculture Radio Show

This book brings permaculture and veganism together into one volume designed to motivate and inspire the compassionate, creative activist inside all of us. Chock full of useful information, it is more than design concepts and practical techniques, it also gives a view of a just, abundant and joyful world, waiting to be.

WILLIAM FAITH

Permaculture designer/teacher, musician and co-founder Black Rose Arts Collective

Graham's much awaited book is far more than just being about permaculture for vegans. Within you'll find in-depth information about creating an ecological and abundant lifestyle that applies to us all. Woven in between the diverse topics are a multitude of tasty vegan recipes that Graham has fine-tuned over the years. As a 30-year vegan myself, I'm looking forward to trying them out and delighted to finally see this long-vacant niche being filled so well. Great job, Graham!

ARANYA

Permaculture teacher and author of *Permaculture Design: A Step-by-Step Guide*

Whether you're a vegan, or someone just seeking to eat a lot less meat, this book will be just right for you. He shows how ecological thinking and action is good for us, good for the planet, and tastes great too!

ANDY GOLDRING

CEO Permaculture Association (Britain)

*The Vegan Book of Permaculture* offers a clear and accessible pathway through the garden of ethical food, from design and cultivation to nutrition and cooking, all aspects of why and how to take up growing and feed ourselves are there for the picking!

CLAIRE WHITE

Permaculture teacher and forest gardener

A refreshing, radical approach to sustainable living, it is absolutely bursting with interesting, inspiring and engaging snippets.

BRENDA DAVIS and VESANTO MELINA

Authors of *Becoming Vegan: Express Edition* and *Becoming Vegan: Comprehensive Edition*

Graham has pioneered vegan permaculture and this book is testament to his knowledge and passion. Graham integrates a desire for social justice for non-humans with the ethics, principles and practices of permaculture in a beautiful and accessible way. Its applications worldwide for social change are clear and I hope this book inspires a movement to change our landscapes and society to radically change how we interact with animals and each other.

NICOLE VOSPER

Permaculture designer, gardener and community organiser

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**GRAHAM BURNETT**



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# Introduction

Permaculture can be summed up as using ethical design to create abundant yet sustainable ways of living for all Earth Citizens. It stresses patterns of co-operation rather than competition in order to achieve goals that are both ecologically sound and economically viable. The principles of permaculture can be applied to gardening, agriculture, building, 'green' economics, transport, waste treatment, health care, creating a livelihood and community development. Or to as basic, yet important, an activity as preparing a meal.

How we eat is such a fundamental part of what we are; yet in our industrialised culture it has so often become just another symptom of alienation and disempowerment. Pre-packaged, processed 'fast' foods relegate the acts of cooking and eating to a mere inconvenience, to be dispensed with as quickly as possible in our stressful busy lives. Our leisure time too is at a premium, so who wants to waste it in the kitchen when we could be consuming the cheeky wit or glamorous sophistication of the latest celebrity TV chef? Forget the food miles, factory farms, exploited labourers, eroded soils, polluted water ground water, GMOs and pesticides: just keep spectating...

But it doesn't have to be this way. If nothing else, permaculture gives us the tools and confidence to take responsibility for our lives and actions. Creating a good meal, either for us or to share with friends or family, taking time to prepare fresh, wholesome ingredients with care and respect, can be a deeply liberating experience. It's also a way of taking back some control from the advertising agencies and multinational corporations and making a very real difference in both personal and planetary terms.

The recipes featured in this book are not only delicious, healthy and wholesome; they have also been chosen to be relatively 'low impact'. They use a minimum of packaged or processed ingredients, and the preparation required is uncomplicated. Furthermore, they all emphasise the usage of animal-free, plant based ingredients that, in theory at least, can be grown at home or within a cool temperate climate zone such as the UK, thus reducing both 'food mile' impacts and the 'ecological footprints' caused by large-scale animal-centred agriculture.



Note that this isn't intended to be used as a 'rulebook'. Instead think of the recipes and information in here as broad guidelines and ideas. Some elements and ingredients that work well together as 'patterns' can be adapted to your own preferences, tastes and circumstances. For this reason most of them aren't written down in terms of accurate measurements, but instead encourage you to experiment and get a 'feel' for what is right: what vegetables and grains complement each other? What proportions of herbs and spices will add flavour without dominating? What textures, tastes and colours are aesthetically pleasing to the eye as well as the palate?

Personally I seldom follow the recipes or gardening tips that I find written down in books. Instead I use them as springboards for my own creativity, and I'd encourage you to do the same. My garden is not the same size or shape as yours, neither are my taste buds or ideas about what 'serves 4' means. Don't like carrots? Substitute an apple! Your design proposal to the local council for a forest garden in the grounds of a day centre for people with special needs has been rejected? Rename it an 'edible sensory fruit maze' and resubmit it – it worked for me once! As with the best permaculture designs so with cooking – observation, adaptation and experimentation are the keys!

Recipes are credited throughout to those who have submitted them, even if I have ended up adapting them a bit. Unaccredited recipes are my responsibility (although how they are used is yours!), either my own creations or adapted from sources long forgotten.

## CHAPTER 1

# Permaculture and Veganism - The Basics

“Permaculture offers a radical approach to food production and urban renewal, water, energy and pollution. It integrates ecology, landscape, organic gardening, architecture and agro-forestry in creating a rich and sustainable way of living. It uses appropriate technology giving high yields for low energy inputs, achieving a resource of great diversity and stability. The design principles are equally applicable to both urban and rural dwellers.”

Bill Mollison

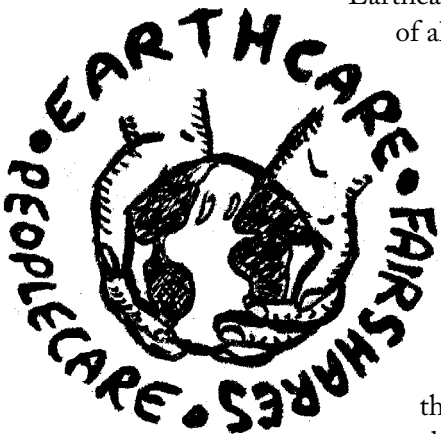
# So What Is Permaculture Anyway?

‘Permaculture’ is a combination of the words PERMANent and agriCULTURE (or latterly PERMANent CULTURE, for no culture can survive for long without a sustainable agricultural base or land use ethic at its heart). The original ideas were developed in the late 1970s by two Australians, David Holmgren and Bill Mollison, as a response to what they recognised as serious ecological threats to the survival of all of us. It’s a holistic design system – a way of making links and connections and seeing how elements are placed in relation to each other. In this way we can create regenerative, self maintaining, low input/high output, non-exploiting systems that will help us to thrive and live abundantly in ways that will meet the needs of future generations as well as our own. Permaculture now probably has as many definitions as there are practitioners, but one that is particularly useful might be: “creating sustainable human habitats by following nature’s patterns”.

Permaculture isn’t about having to get your head around untold facts, figures, Latin names and complicated techniques, rather it is about recognising universal patterns and principles, and learning to apply these ‘ecological truisms’ to our own gardens and life situations. We can identify the underlying forms that recur throughout the natural world and learn to understand and utilise them in designed ecologies.

At the heart of the permaculture concept is a set of ethics, or ‘core values’, that are embedded into and inform all of our actions or design decisions:

‘Earthcare’ (we recognise that our Earth, Gaia, is the source of all life and respect her accordingly).



‘Peoplecare’ (we support and help each other to change to ways of living that are not harming ourselves or the planet – we realise that we are a part of the Earth, not apart from it).

‘Fair Shares’ (we ensure that the Earth’s limited resources are utilised in ways that are equitable and wise, and that we share our surpluses rather than accumulate them – there’s enough for all our needs but not for all our greed).



Influenced by ‘Systems Thinkers’ such as Howard T. Odum and Donella Meadows, permaculture design principles are a set of guidelines derived from the study of both the natural world and what has worked for non-industrialised sustainable societies, often for many millennia. As peak oil, climate change and the precarious nature of our current financial systems become increasingly difficult to ignore, we can apply these to a variety of circumstances and situations in order to help us transition towards what is likely to be a low energy, low carbon future. Such principles are often about our attitude to situations, and can be clearly demonstrated when applied to our kitchens, gardens, allotments, fields, forests, orchards and cities.

## Work with Nature, Not Against Her

Francis Bacon’s assertion in the early 1600s that we must ‘bend nature to our will’ has informed our species’ relationship with this fragile planet for much of the modern era. Now in these days of desertification, flooding, global warming and mass extinction, we are seeing just how futile and plain wrong-headed such a philosophy truly is. Putting massive efforts into attempting to ‘tame nature’, such as by creating and maintaining bare soil by plough, is not only energy consuming, unsustainable and destructive, it is also unnecessary when we can meet the needs of people and the environment by working in harmony with natural systems.

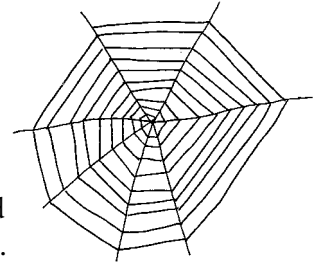
## Observation Is the Key

In contrast to our prevailing ‘fast food and quick fix’ culture, permaculture is about practising protracted and thoughtful observation instead of looking for instant solutions that in the long run often cause even more damage to a situation. Rather than rushing to address what are often superficial symptoms, the first question a permaculture designer will ask is, “What is really going on here?” Are persistent aphid attacks on your runner beans due to a lack of the correct pesticides being applied, or is this a manifestation of more fundamental imbalances within the wider ecology of your garden? Are high levels of crime in your locality best tackled by installing more CCTV cameras in the street, or by addressing deeper social malaises such as inequality, poverty and social alienation? Good observation is about seeing holistically, looking at all the functions and characteristics of the plants, animals and humans in an environment and how they interact with each other, often over extended periods of time. Learn to develop and practise the skills of observation by taking time to sit back, ground yourself and watch, listen, smell, taste, feel and contemplate.



## Design from Pattern to Detail

Both in nature and in human communities, patterns in time and space recur on an almost infinite number of levels. Branching patterns can be observed in the form and structure of a tree's growth, as well as in river deltas and the central nervous and circulatory systems of vertebrates.



The spiral is a mathematically derived pattern that can be seen on scales ranging from sub-atomic particles to galaxies, or from continental storm fronts to the arrangement of seeds in a sunflower head. The movement of the sun through the sky in summer and winter governs day length and the patterns of plant growth and seasonal activity. We can also determine social and human patterns that are basically unchanged since prehistoric times. These include our need for rituals and festivals that mark special occasions or the cycles of the year, or the importance we almost subconsciously place on the stories and myths that transmit intergenerational knowledge and cultural values.

In a sense patterns are a set of rules and constants that broadly define form, function and behaviour, yet at the same time allow for an infinite variation of detail when made manifest. For example, most of us know an oak tree when we see one; we instantly recognise its distinctive lobed leaves, grey-fissured bark and the typical shape of its trunk and canopy at various life stages from seedling to maturity. Yet no two oak trees are exactly alike. Each individual's specific location, environment and genetic peculiarities cause a myriad of variations in how the basic patterns encoded in the oak's DNA are implemented. So too the permaculture design tool of 'zone and sector planning' (see page 14) is a pattern for predicting and working with human and natural energy flows that has an unlimited number of applications in the real world.

Being able to recognise, understand and utilise the properties of pattern – in other words working with 'pattern language' – is a fundamental prerequisite to developing good design skills in a multitude of contexts that might range from creating location-suitable productive gardens to successfully managing a complex community development project.

## Everything Gardens, or Modifies, Its Environment

When we mindfully observe nature, we can see that animals and plants are often carrying out many of the tasks that we consider gardening chores as they go about their daily business of finding sustenance or adapting their habitats to meet

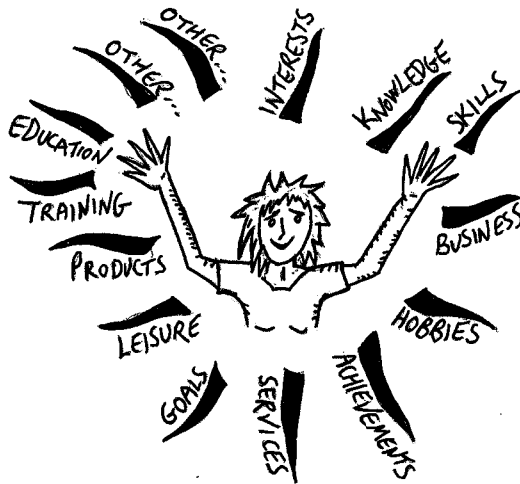
their own needs. Worms dig and aerate the land; leaf fall mulches bare soil, adds nutrients and improves its structure; fast spreading wild annual plants ('weeds') such as chickweed provide overwintering ground cover; slugs devour dead plant matter and begin the composting process that is continued by bacteria, fungi and other micro organisms; bees pollinate our fruit bushes and the droppings of birds sew and spread seeds and add fertiliser.

So instead of whipping out the Bug Gun at the first sign of pest damage, why not encourage predators such as ladybirds and hoverflies to do our work for us by planting attractant flowers such as limnanthes (poached egg plant), nigella (love in a mist) or buckwheat? Instead of damaging the soil's structure and straining our backs with constant digging, why not add compost directly to the soil as a surface mulch and utilise the worms' free labour inputs, whilst at the same time suppressing weeds and providing protection from the elements?

## **The Problem Is the Solution**

Or, as Bill Mollison didn't quite say, "You haven't got an excess of slugs, you've got a frog deficiency..." In other words, it is how we look at things that makes them advantageous or not. Sometimes a simple change of perspective can help us to see that what at first appears to be a difficulty or a challenge can in fact be a gift... As another example, the arrival of wild plants on our plots is inevitable; what we do have a choice about is our approach to them. Are they 'weeds', against which a constant yet futile war of attrition is waged, or are they a resource, valuable in at least parts of the garden even if we don't allow them to dominate in our productive areas? Such plants increase biodiversity, act as 'dynamic accumulators' (that is, they mine the subsoil with their roots to bring up minerals that may be deficient on the surface), attract beneficial wildlife and can be harvested for compost or mulch material. Many are even edible or medicinal, or have a host of other uses and properties that are now largely forgotten.

There are also many situations in life that can be transformed from adversity to opportunity when viewed from a fresh angle. For example, being made redundant from a highly paid but under stimulating or ethically compromised job could actually provide a chance for a person to think about 'downsizing' their lifestyle in ways they might not otherwise have considered. Maybe they could free up time for reskilling or become more self-reliant in the quantities of fresh food they are able to grow rather than commuting to the office, or could find other ways of making a living that are more in accord with their interests and passions.



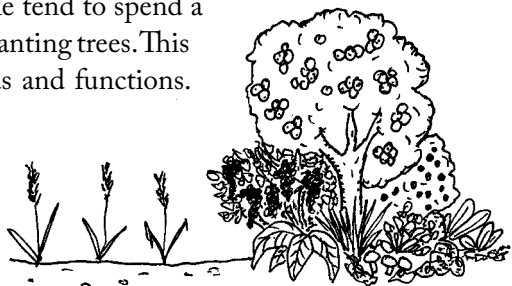
We all have a multitude of skills and abilities – why not think about ways of creating polycultural livelihoods for ourselves so that we can live by our enjoyment?

## Maximise Diversity

In the 21<sup>st</sup> century the world largely relies on some 20 or so staple crops. Yet the Cornwall based permaculture growing and research project Plants For A Future<sup>1</sup> lists over 7,000 species of plants that are edible or otherwise useful to peoplekind that we can grow in the UK alone.

In a permaculture growing system each function should be supported by many elements. In other words, nothing should be indispensable as its loss or failure can be disastrous. A person who has had only one well paid but highly specialised job throughout their working life would be less able to cope with redundancy than somebody who has several small incomes earned from a variety of sources. In the same way, the farmer who grows as wide and diverse a range of edible and useful plants as possible, for example fruit and nut trees, vegetables, salads, grains and cereals, and fungi (a polyculture), still gets to eat if some of them don't make it to harvest. On the other hand, their neighbour who gives all of the same area of land over to a single crop of wheat (a monoculture) starves if it fails.

The other side of the coin is that every element in the system should have many uses. Permaculture people tend to spend a lot of time emphasising the importance of planting trees. This is because of the multiplicity of their yields and functions. Not only do they provide food crops in the form of fruit, nuts, berries, beans and

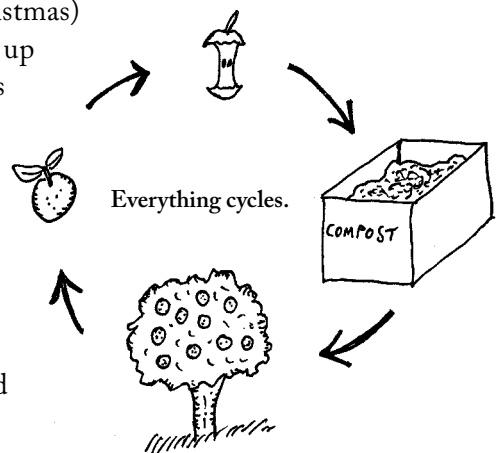


leaf protein, they also supply bio-fuels, timber, coppice, medicines and fibre as well as a myriad of beneficial effects for wildlife and for planet-wide systems. These include soil building, maintaining fertility, checking erosion, driving global water and air cycles, regulating temperature to name but a few.

## Everything Is Part of a Cycle

In the natural world, there is no such thing as ‘pollution’. Within an ecosystem, every ‘waste product’ is useful elsewhere within that system. Examples include the nitrogen, carbon and hydrological cycles. Powered and regulated by the life processes of living trees and forests, for millions of years these have pumped massive amounts of energy around the globe in constantly changing forms. Modern living, however, seems to be all about breaking nature’s perpetual cycles, perhaps best symbolised by our practice of flushing our bodily ‘wastes’ out to sea rather than returning this fertility to the soil. We then need to build high maintenance sewage treatment plants in order to manage and make safe these massive toxic outputs, whilst at the same time adding artificial fertilisers to nutrient deficient agricultural land. Using composting toilets to harvest our faeces that, when thoroughly broken down over a year or so, can then be applied to fruit trees and other edible crops as ‘humanure’, is an elegant, low effort way of restoring the ‘food to fertility to food’ loop.

We have also broken the cycle of *time* by changing to a linear perception of its passage. For our ancestors, events were not singular but recurrent, governed by the movements of sun and moon, the passing of the seasons, of sowing and harvest, summer abundance and winter scarcity. Nowadays we see no reason why we shouldn’t have spring lamb and fresh strawberries in December, but even though our calendars might run in straight lines, our bodies are still attuned to respond to nature’s patterns. Winter Solstice (Christmas) feasting was originally about stocking up our bodies with the last of the previous season’s harvest in preparation for the lean months ahead. Is it then coincidence that goosegrass, one of the first plants to appear the following spring, acts as a natural tonic when drunk as a tea, flushing out the body toxins that build up over the winter? Returning to eating what is locally and seasonally available repairs another cycle and puts us in touch with the earth again.





Keyhole beds maximise edge and increase the amount of available growing space as well as adding visual interest to the garden.

## **Yields Are Limited Only by Imagination**

‘Yield’ is usually thought of as the quantity of material output obtained (e.g. amounts of potatoes, grain etc.) calculated against resources or effort put in. But there’s no reason why we can’t widen our definition. Yields from a system might also include information, lessons learned, experience, the health benefits of exercise and being outdoors, or even just plain fun...

Permaculture designers are like the best cooks and gardeners, constantly trying out fresh ideas, learning new techniques, finding new niches to utilise, seeking new beneficial relationships between elements and gathering knowledge. By comprehending and copying natural systems, we can develop techniques in order to multiply such opportunities, including strategies such as maximising edge. In ecology, it is recognised that the ‘edge’ or ecotone is basically where the action happens – where a high exchange of materials and energy takes place. The edge is the place where two ecosystems meet, for example, the interface between the sea and the land, or where woodland meets grassland. Such an environment tends to be more synergistic, supporting biological activity from either side of these boundaries, as well as species particular to those conditions, thus making it a highly productive region. Permaculture design seeks to increase edge and its beneficial effects as much as possible, including between people and ideas.

## The Vegan Way

Permaculture is an approach rather than a belief system, a useful framework for positive action whatever our lifestyle choices. So whilst adopting an animal-free diet and permaculture may not necessarily be the same thing, for me the ethical underpinning of all permaculture design – Earthcare, Peoplecare and Fair Shares – doesn't seem so very different from the compassionate concern for 'Animals, People and Environment' spelled out on the Vegan Society sticker in my front room window. I became vegetarian when I left school in 1977, and stopped eating animal products altogether in 1984 for a mixture of ethical and spiritual reasons. These can basically be summed up as a desire to strive to survive causing the least suffering possible.

In the UK alone each year, approximately 2.8 million cattle, 8.5 million pigs, 15 million sheep and lambs, 80 million fish and 950 million birds are slaughtered for human consumption.<sup>2</sup> The majority of industrially farmed animals spend their lives trapped in cramped, squalid cages, never once seeing the light of day, and unable to satisfy the natural desires of all creatures for movement or contact with their own kind. For those bred purely for their flesh ('meat') the suffering is relatively limited, for they are slaughtered as soon as they are of an optimum age. Not so for dairy animals however, those creatures imprisoned for the products that they yield. Cows which are subjected artificially to yearly pregnancies, and whose calves are snatched away for veal or to intensive beef units so that we can enjoy their milk. The hens that are crammed into flocks of up to 30,000 birds at a rate of 19 to the square metre,<sup>3</sup> often de-beaked and force-fed on steroids and protein concentrates in order to produce 'fresh farm eggs'. For these pathetic creatures the luxury of death is found only when they cease to be productive, slaughtered for 'low grade' meat products such as soup or pie ingredients or pet foods.



Personally I don't see a need for my sustenance to be dependent on the suffering and death of other sentient beings. For me, what and how I eat is a celebration of life, so shouldn't have to involve its negation. But there are also strong environmental arguments why those who seek more earth right ways of living might also consider eating less meat and dairy products.



## Vegan for the Land

A vegan diet using locally grown organic produce is amongst the most sustainable. A plant based diet requires far less land than that needed to maintain a typical western diet. Farmed animals consume much greater amounts of protein and calories than they are able to convert into produce, so far larger quantities of crops are needed to feed humans with animal products than are needed to feed people directly. Globally the world's forests are being destroyed to make ever more room for cattle ranching or for the production of crops like soya for animal feed. These forests play a vital role in maintaining the ecological balances of the planet, regulating oxygen and carbon dioxide levels in the atmosphere, providing habitat for innumerable species of plants and animals, controlling water cycles and preventing soil erosion and the spread of deserts.

In the UK animal farming accounts for some 85% of agricultural land use, either directly for grazing or for the production of fodder crops, with two-thirds of the British cereal crop being fed to livestock annually. Yet it has been estimated that a future vegan Britain, using permaculture design and methods to increase integration of lifestyle with natural and renewable cycles, could be self-reliant in food, fertility, fibre and fuel on around one third to a half of the agricultural land currently available, especially if home gardens and public urban spaces were used for food growing, and land currently considered 'marginal' or suitable only for rough grazing was made directly productive by planting high protein edible or otherwise useful tree crops.<sup>4</sup> This abundance could greatly reduce the need for food imports, often from so-called 'Third World' countries that would then be free to utilise land to feed their own populations. Millions of acres could also be given over to uses such as recreation, wildlife habitat and, most importantly, reforestation projects, making a significant contribution to the reversal of the 'greenhouse effect'.

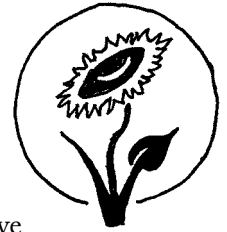
Cattle, sheep and other ruminants are a significant source of methane, a powerful greenhouse gas. Reducing livestock farming, whilst at the same time launching massive reforestation projects, could potentially not only help to lock up the carbon released by centuries of fossil fuel burning and land clearances, but also be a step towards cutting methane emissions. Thus climate change could be tackled on two fronts simultaneously.

There is also the question of water as a global resource. Agriculture accounts for some 70% of fresh water usage worldwide, including the production of grain, 40% of which is fed to livestock to produce the meat-rich diet of the north. The extraction



of water from aquifers in India (where nearly all water is used in agriculture) exceeds recharge by a factor of two or more. Furthermore, dry-lands and desertification are spreading as forests are cut down, at least partly as a consequence of increasing pressures placed upon the land by mass-scale animal farming and feed production.

## Vegan for Health



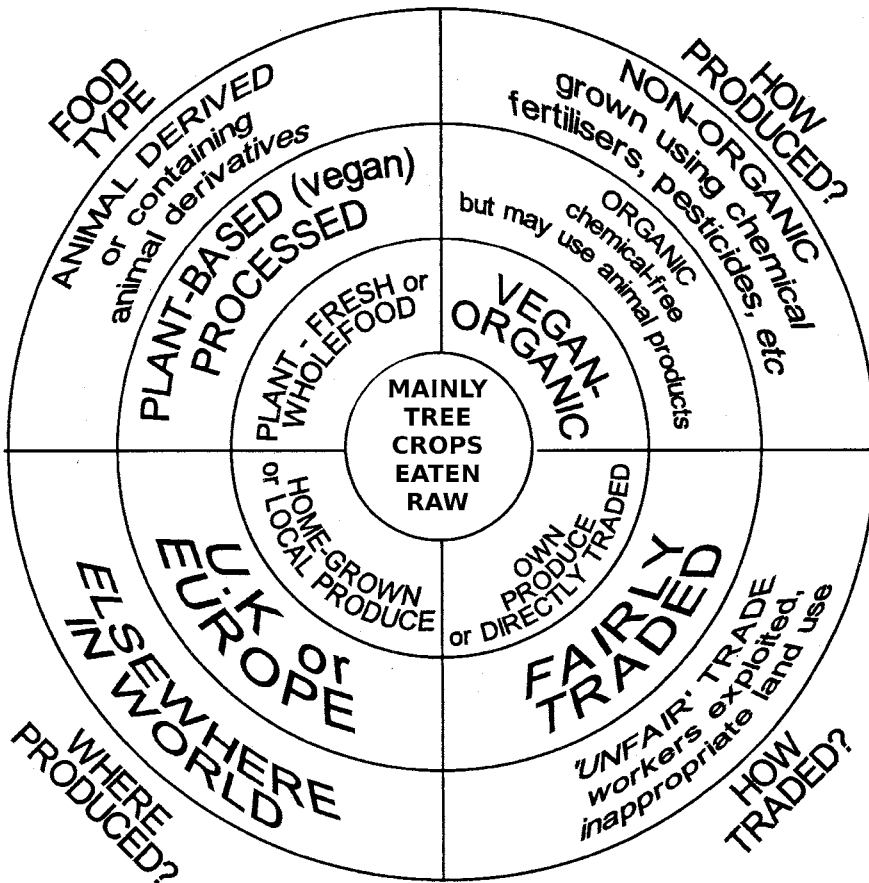
Moving towards a more plant based diet is not only better for planetary health; it also makes sense for our own well-being. Excessive animal products tend to clog and acidify the body system, and have been linked to many diseases including cancer, diabetes, high blood pressure, heart problems, constipation, obesity and allergies. By contrast, studies have shown that a well-planned vegan wholefood based diet can not only reduce the incidence of these illnesses, but also greatly improve general health.

Poor husbandry practices engendered by mass-scale animal farming have been linked to potentially devastating diseases of humankind such as BSE, E. coli, salmonella poisoning and bird flu. The indiscriminate use of antibiotics in animal feed poses yet another risk to human health. Half of all antibiotics produced are fed to farm animals, both to combat disease and promote faster growth. The result is that many diseases, including meningitis, enteric fever and septicaemia, can develop antibiotic resistance and become ‘superbugs’. Furthermore, such antibiotics can also find their way onto our plates via the animal products based food chain and in turn weaken our own immune systems.

In short, western expectations for meat and dairy to be available on the table three times a day, seven days a week, 52 weeks a year are globally unsustainable by any standards. The vegan way might not be the solution for everybody, but I believe we will all need to at least think about lifestyles and diets that are less dependent on animal products and the inputs these entail if all Earth Citizens are to live and eat well in a sustainable future.

Of course, only the individual can decide where they should draw the line between their own ideals, and how far they can acceptably compromise with global systems that are unjust, environmentally destructive and exploitive of people, animals and planet. Permaculture is about personal accountability and paying attention to energy flows and cycles, and it’s as easy to lead an unsustainable, unaccountable vegan

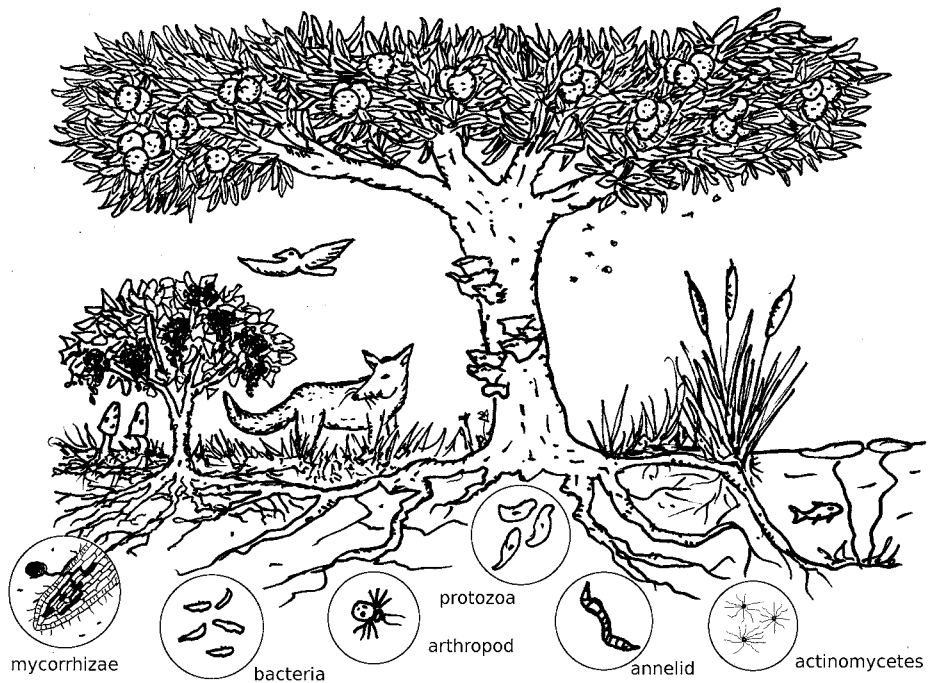
lifestyle based on imported, fossil fuel hungry, monoculturally grown and over-processed soya based convenience foods as it is to live as an unsustainable and unaccountable omnivore. What is important is that we all develop an awareness of our own 'energy budgets' and the 'ecological footprints' of how we live, and begin to work to steadily reduce these. In the longer term we need to meet a far greater percentage of our needs from home, market and forest gardens, as well as from the yields of trees.



The Food Wheel developed by Alan and Elaine Garrett of the Movement for Compassionate Living.<sup>5</sup> For a more compassionate diet, choose foods that are as close to the centre of the wheel as possible.

## Permaculture Without Animals?

Not all permaculturists or permaculture projects are vegan, and I've often been asked whether a completely animal-free permaculture is even actually possible. My response is, of course not, and neither would it be desirable. For example, how would we fence out the earthworms that build our soil and maintain its fertility, or the bees that pollinate our fruit trees and vegetables, and why ever would we wish to? In fact, we actively design in features that are intended to attract wildlife: ponds for frogs, toads and dragonflies, and flowering plants to bring in the ladybirds and hoverflies that keep populations of potential pests like slugs and aphids in check, and are essential to maintaining healthy productive ecosystems. What we don't include are those 'system components' that we believe perpetuate exploitative relationships with our non-human Earth co-citizens, such as pigs, goats and chickens, whose primary function is the production of meat, milk and eggs.



Many kingdoms of life interact in the forest garden.

The Naturewise forest garden in north London<sup>6</sup> is one example of an edible landscape that is ostensibly ‘stock free’, although in actuality members of several of the Kingdoms of Nature work together here for mutual benefit. Deep rooted comfrey plants mine nutrients like nitrogen, potassium and phosphorous from the subsoil, making them available to fruit trees and bushes. Birds and bees buzz around the canopy layer, whilst insects and arthropods patrol the undergrowth and leaf litter, checking and balancing pest populations and playing their role in the cycles of growth and decay. Fungi and bacteria continue the process. These break down dead matter into rich humus and minerals that are exchanged with plant roots via associations with mycorrhizal soil networks in return for sugars and carbohydrates manufactured by photosynthesis. Based on the structure of natural woodland, the forest garden is a complex web of which humans too are an integral part. Aside from a bounty of apples, pears, figs, grapes, strawberries, currants and edible leaves, one of the most important yields of this mini-woodland is the sense of community that the space offers to the volunteers that spend time here. And being situated in a school playground it also acts as an open air classroom where children of many ethnic and cultural backgrounds are able to interact with nature, an opportunity that is often all too rare in the inner city.

## Understanding ‘Zones’

Good design is about maximising the beneficial connections between elements, in other words, putting things in the right place. This is about efficiently utilising our energy inputs and the space we have available to us in relation to where we tend to spend most of our time. For example, there’s not a lot of point in planting a bed of ‘Cut and Come Again’ mixed salad leaves on your allotment a mile away from your house if you only visit it once every couple of weeks. When you are knocking up a salad for tea, human nature and the law of minimum effort dictates that you will pop round to the corner shop and buy a salad bag whilst your crop sits running to seed. In other words, your wonderfully succulent and deliciously flavoured lettuces, rocket, mizuna and mustard are simply planted in the wrong place.

Zoning is therefore an important permaculture analysis and design tool that helps us to think about our energy inputs and decide where things best belong. Traditionally, zones are numbered from 0 to 5, and can be thought of as a series of concentric rings moving out from a centre point, where human activity and need for attention is most concentrated, to where there is no need for intervention at all.

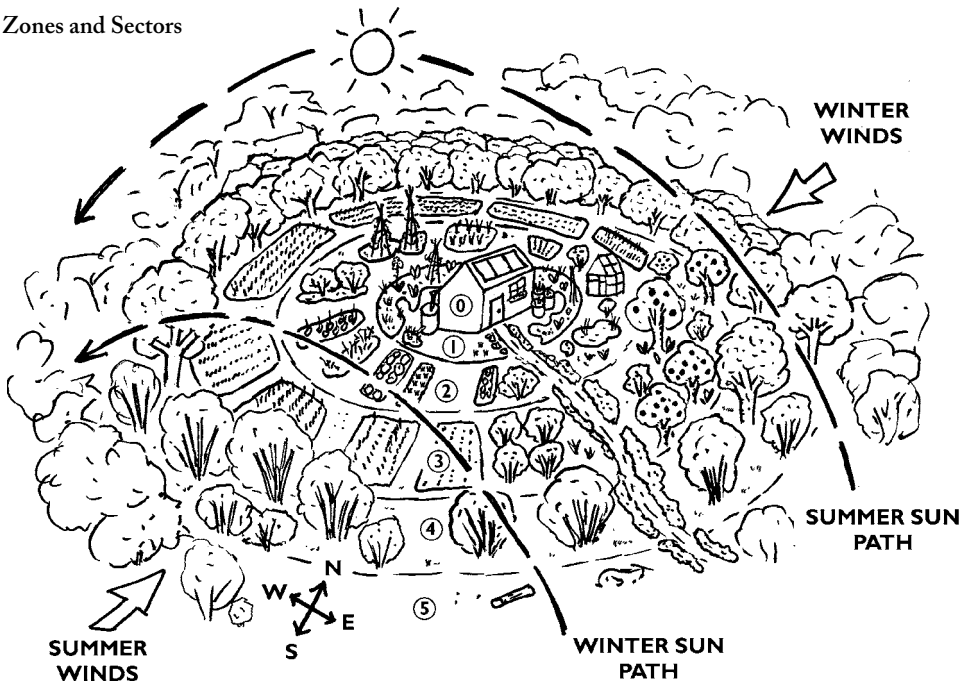
- Zone 0 is the house or home centre. In terms of food production this might be about using energy efficient cooking and storage methods, or designing an ergonomic kitchen layout.
- Zone 1 is immediately next to your back door, the place nearest the house where the gardener's shadow, 'the best fertiliser of all', according to an ancient Chinese proverb), most often falls. This is where to put crops that require frequent attention and harvesting, those 'Cut and Come Again' salads mentioned above that need to be plucked regularly, fresh herbs that are added to daily meals, strawberry plants, those seedlings in trays that need watering a couple of times a day until they are established, the worm compost bin that needs to be added to little and often and cold frames for tender plants that need to be opened in the morning and closed at night.
- Zone 2 extends out from Zone 1, and in the larger garden might be where we grow more crops for household use that do not require quite as much attention – maybe a variety of vegetables in beds that require watering and weeding every couple of days, or possibly a small forest garden area with a few dwarfing fruit trees, currant bushes and perennial herbs and vegetables.
- Zone 3 is main crop production – perhaps that once a week cycling distance allotment where we might plant larger amounts of staples; these can be onions, beans or potatoes that take up quite a bit of space but don't require that much attention beyond occasional weeding and watering – maybe once a week or even less once established, especially if utilising techniques such as mulching that conserve soil moisture and suppress weed growth. It is also where we might think about sourcing the bulk of the cereal grains and other staples that are grown on a more extensive farm scale.
- Zone 4 is semi-wild, for example coppice managed woodland used for timber, woodland products like charcoal, poles, fencing, etc. Attention here might be necessary only once a year or less, especially if managed on a rotational basis.
- Zone 5 is wild nature, where we don't design. Instead we observe. Apart from some foraged wild foods, the main 'yield' here is the opportunity to look at and learn from natural ecosystems and cycles.

If zones are about understanding our own patterns of energy use, then 'Sector Analysis' helps us to consider natural energy flows such as sun, wind or wildlife and how these might affect our microclimate. For example knowing where and when the sun rises and sets at different times of the year in relation to our garden can help us decide where to position our sun loving or shade tolerant plants, and knowing the prevailing wind direction can determine the best potential location for a protective shelter-belt hedge or wind turbine. It's also useful to think about slope and the

implications this might have on your land in terms of its limitations, potential and management strategies such as water flow, preventing erosion and so on.

The tool of zoning can be utilised in many ways other than thinking about how land is used. Try, for example, applying it to determine scales of community organisation and how relevant these are to you. Where might your energies best be employed in effecting change, and when do different strategies become appropriate? Zone 0 could be the people you share a home with, i.e. your partner, family or room-mates; Zone 1 your friends, immediate neighbours or work colleagues; Zone 2 the streets around you, or within your district or parish boundaries, and so on outwards, with Zone 5 perhaps representing national government and its intractable jungle of bureaucracies. What are your 'circles of influence' or strategic leverage points if you truly want to make a difference? Do you approach your partner about their habit of always leaving the towel on the bathroom floor in the same way that you address a community meeting about road safety outside your kid's school, or the way that you engage in a national scale Anti-War protest event? Probably your strategies are different in each case, just as you wouldn't use a hand fork and trowel as your main tools to landscape a 1,000 hectare farm or hire a JCB to tend your window box...

Zones and Sectors



## How This Book Is Organised

For the remainder of this book I've loosely used the concept of Zoning as a theme to explore our own relationships to land, food and community. Each chapter focuses on an aspect of creating greater self reliance in our day-to-day lives, as well as looking at a wider picture of building more resilient and regenerative futures for ourselves, our children and our world.

- Zone 0 looks at the energy flows within the house, along with the food producing potential of the average kitchen, such as sprouting, growing windowsill greens, fermentation and small-scale mushroom production.
- Zone 1 focuses on the application of a permaculture design process to the small back garden of a typical urban household, as well as some ideas for using the salad crops that even those of us with very limited space could grow.
- Zone 2 provides an overview of vegan organic methods of growing fruit and vegetable crops in a larger back garden, as well as plenty of recipe ideas for how these might be used.
- Zone 3 looks at sourcing the main crops and staples of our dietary requirements on a scale beyond what most of us would be able to grow ourselves, including some ways in which we might develop more regenerative local food links. It also includes plenty of recipe ideas for cooking with staples such as grains and pulses.
- Zone 4 focuses on the potential of tree crops to feed people kind and meet other needs in a more compassionate and sustainable future, as well as exploring the concept of forest gardening and using the amazing diversity of crops these can yield. This section also includes ideas for using fruits, nuts and leaf protein as alternative staples.
- Zone 5 looks at our relationship with the wilderness and the harvests it can offer us both in terms of wisdom and the useful wild plants that we can forage.
- So far I haven't mentioned a seventh important zone in permaculture design, that which is sometimes referred to as Zone 00. This means the person or persons at the very heart of any human-based system. Perhaps this is the most important part of the design of all. Thus it is where the journey through this book both begins and ends, respectively focusing on how we as individuals can become more effective in changing ourselves and the world around us, and finally looking at the amazing power of community when World Changers come together.

