

# PERMACULTURE BASICS

Infographic eBook

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FRACTAL  
PERMACULTURE

# WHAT IS PERMACULTURE?

*Some definitions offered by master permaculture practitioners....*

**Bill Mollison** in *Permaculture: A Designer's Manual*

"Permaculture is a philosophy of working with, rather than against nature; of protracted & thoughtful observation rather than protracted & thoughtless labour; of looking at plants & animals in all their functions, rather than treating any area as a single-product system."

**David Holmgren** in *RetroSuburbia*

"Popularly seen as a 'cool' form of organic gardening, permaculture could be better described as a design system for resilient living and land use based on universal ethics and ecological design principles. Although the primary focus of permaculture has been the redesign of gardening, farming, animal husbandry and forestry, the same ethics and principles apply to design of buildings, tools and technology. Applying permaculture ethics and principles in our gardens and homes inevitably leads us towards redesigning our ways of living so as to be more in tune with local surpluses and limits. Permaculture is also a global movement of individuals, groups and networks working to create the world we want, by providing for our needs and organizing our lives in harmony with nature. The movement is active in the most privileged and the most destitute communities and countries."

**Rosemary Morrow** in *Earth User's Guide to Permaculture*

"Permaculture is the science of applied ecological design and, as with all sciences, you need some knowledge and skills. In permaculture, the fundamentals are water, soils, climate and plants. It is essential for good design work that you are a critical observer of all these elements. Every site is different and the rigour and care you bring to your observations will make all the difference between a good sustainable design and a poor one."

**Dave Jacke**, author of *Edible Forest Gardens*

"At its essence, permaculture is the conscious design and co-creative evolution of agriculturally productive ecosystems and cooperative and just social and economic systems that have the diversity, stability, and resilience of "nature"."

# WHY PERMACULTURE?

When you learn what permaculture is and what it can do, it becomes obvious why we need it now more than ever. If we don't change how we interact with nature, how we conduct business on this planet Earth, we are going to destroy the very sustenance we rely on. Our industrial economy is causing an ecological crisis. We are decimating fertile topsoil, we are destroying forests, we are drying up our freshwater supplies, we are manufacturing and releasing toxic pollutants into the environment at alarming rates. Many of our social systems around the world are also causing immense suffering, because of inequalities, injustices, and oppression of various kinds. I won't fill this page with any more depressing statistics, because a simple internet search will show you all of the evidence you need, and this e-book is meant to serve as guide toward solutions, not problems.

The good news is, we have the knowledge and the technology available to us to not only reverse the damage that's been done, but to provide for the needs of every living thing on this earth. Permaculture shows us ways to do that. The term permaculture was coined by Bill Mollison and David Holmgren in the 1970s, but many of the permaculture methods existed beforehand from indigenous communities around the world, organic gardeners, biodynamics, and ecological design.

Permaculture is a design science that is often applied as a regenerative agriculture practice. Regenerative means healing the damage that's been done (to our planet, to our communities), as well as maximizing resilience. Permaculture is a science because it includes evidence-based, time-tested approaches for regenerating ecosystems and human systems. The permaculture umbrella includes effective methods to clean polluted watersheds, bring balance to disrupted water cycles, repair damaged and eroded soils, restore biodiversity, re-establish living systems on land that has been ravaged by industry and commerce, and so much more. Permaculture also focuses on regenerating agricultural systems and social systems. Permaculture design can be applied to almost anything, because it is a set of universal ethics, principles, and design methods. This e-book outlines some of the essential ethics, principles and practices of permaculture.

Permaculture requires us to observe our lives and your surroundings, and change them little by little to harmonize with the rhythms and flows of nature. Rather than consuming and destroying until social/economic/environmental collapse, permaculture leads us to the path of least resistance and most resilience. Permaculture systems are able to self-regulate, adapt, grow, heal, and provide for our needs and the needs of future generations.

# PERMACULTURE ETHICS



## EARTH CARE

*The role of human kind is to practice stewardship by nurturing all life and regenerating damage that's been done.*

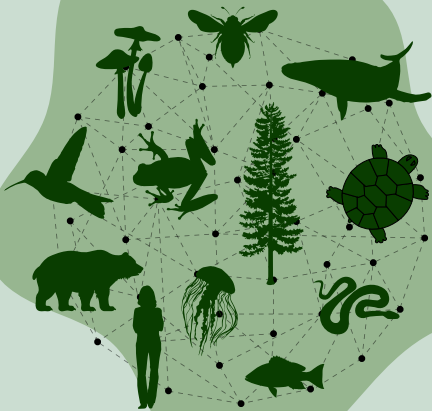
## PEOPLE CARE

*For the Earth and for humanity to thrive, it is essential to heal interpersonal traumas and care for each others' physical, emotional and spiritual needs.*



## FUTURE CARE / FAIR SHARE

*Our survival depends on nourishing the entire web of life for generations to come. When there is surplus of power, resources and time, redistribute it to those who are in need. Earth provides abundance for everyone's need, but not for everyone's greed.*



# PERMACULTURE PRINCIPLES

Adapted from David Holmgren's  
*Permaculture Principles &  
Pathways Beyond Sustainability*



## OBSERVE & INTERACT

*Bill Mollison says  
permaculture is about  
"protracted & thoughtful  
observation rather than  
protracted &  
thoughtless labour".*



## CATCH & STORE ENERGY

Harvest and store resources when they are abundant, so that you can thrive when the resource becomes scarce.



## APPLY SELF-REGULATION & ACCEPT FEEDBACK

*Use your head! Learning from mistakes is necessary in order to redesign broken systems.*



## INTEGRATE RATHER THAN SEGREGATE

*Everything works better in relationship, when it is supported by the whole. Design elements should feed into and support each other.*



## DESIGN FROM PATTERNS TO DETAILS

Look at the big picture first, and then fill in the details when the time is ripe.



## OBTAIN A YIELD

*Yields are things you harvest that nourish mind, body and soul.*

- Food, Medicine & Fiber
- Energy, Heat, Shelter
- Knowledge & Experience
- Beauty, Joy, Connection



## PRODUCE NO WASTE

A resource in excess becomes waste. A waste product in excess becomes a resource.



## USE SMALL & SLOW SOLUTIONS

*"The bigger they are,  
the harder they fall"  
"Slow and steady wins the race"*



## CREATIVELY USE AND RESPOND TO CHANGE

Plan ahead, learn when to intervene, and be able to adapt.

## VALUE DIVERSITY

*Biodiverse ecosystems are more resilient, meaning they bounce back from disturbances faster.*



## VALUE THE EDGES

The zones where things interact or merge tend to be more diverse and more productive.



## USE RENEWABLE RESOURCES

We can consume resources and heal the Earth at the same time.

# ETHICAL & STRATEGIC PERMACULTURE PRINCIPLES

Adapted from *Permaculture Design Notes*, pp. 42-48  
by Delvin Solkinson, Grace Solkinson, Kim Chi, Tamara Griffins,  
Annaliese Modern, Dana Wilson & Brenna Quinlan

## **STRENGTHEN LINKS**

Nature works through cooperation and "coopetition".

## **CELEBRATE ACCOMPLISHMENTS**

The harvest is traditionally a celebration. Conscious celebration brings communities together and lifts spirits.

## **BUILD SOIL & BIOMASS**

Compost, chop and drop, use no till methods. Soil with higher organic matter holds more carbon from the atmosphere, it holds more water, and it supports biodiversity.

## **STACKING FUNCTIONS**

Every thing in your design should serve multiple purposes. This will save space, time, money and resources.

## **WORK WITHIN YOUR MEANS**

Be brutally honest with yourself and don't push yourself or others past financial, energetic, and emotional limits.

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## **WORK TO COMPLETION**

Finish one project before starting another. Don't spread yourself too thin. You will get more rewarding results.

## **CREATE SELF-SUSTAINING SYSTEMS**

Why maintain it yourself if nature can do it for you?

## **REDUNDANCY OF FUNCTION**

Always have a backup. support Each Function With Many Elements. Systems without redundancy will eventually fail.

## **RELINQUISH POWER**

Trying to control everything leads to burnout, both for you and for others.

# ETHICAL & STRATEGIC PERMACULTURE PRINCIPLES

-CONTINUED-

## **MAKE IT BEAUTIFUL & HAVE FUN!**

Life isn't all about work. We want to enjoy the fruits of our labours, and nourish communities by harvesting joy, beauty, and meaning in life.

## **INTENSIVELY USE SPACE**

Nature uses every square inch. Can you do the same in your garden, in your home, in your design?

## **RESEARCH**

Research helps us to avoid mistakes, plan better and learn more about our systems.

## **PLAN AHEAD & THINK LONGTERM**

Plan for next season, next year, next decade, and the next 7 generations.

## **EXPERIMENT WITH PLACEMENT**

Write down your different design elements (i.e compost pile, greenhouse, solar panels, pond) on flash cards. Then make flash cards that show placement, writing down "on top of," "below," "next to," "across from," and so on. rearrange multiple design element cards with the placement cards in between, to see where you can get creative with placement. You may find things that work well that you never would have thought of!

## **MAKE THE LEAST CHANGE FOR GREATEST POSSIBLE EFFECT**

Find where a simple, small, and slow adjustment, for the least required energy, can have the effect you desire. Find the leverage point where it makes most sense to intervene. Nothing worthwhile is achieved overnight. For example, instead of tilling a field so you can plant right away, see if you can build soil over time with livestock. The first option is energy intensive and almost instant. The second option is less energy intensive, and takes time, but builds longer term resilience.

## **EVERYTHING IS A RESOURCE OR AN OPPORTUNITY**

Excess waste can be a resource, if you know where to put and what to do with it. An buildup of a resource can also become wasteful, if you don't place it well. The Problem is the solution - if you know how to design well. For example, do you have too many bugs? That's free feed for ducks, and then you get free eggs!



# ECOLOGICAL & PRACTICAL PERMACULTURE PRINCIPLES

Adapted from *Permaculture Design Notes*, pp. 42-48

## ENCOURAGE EVOLUTION

Evolution is change in the heritable characteristics of biological populations over successive generations. Evolution has the potential to accentuate favorable adaptations and traits within species, increasing their resilience and survival.

## ACCELERATE SUCCESSION

Ecological succession is the process by which the mix of species and habitat in an area changes over time. When ecosystems are damaged and plant communities are destroyed, we want to accelerate succession so that the ecosystem can heal. When late-stage succession occurs, a "climax community" is reached. At this stage, biodiversity and biomass production tend to decrease. When a climax community is reached in a regenerative agricultural system, the farmer will usually introduce a disturbance (i.e. controlled burns, trimming, livestock grazing) in order to rekindle succession, maximize yields and biodiversity.

## URBANIZE AND SUBURBANIZE GROWING

Local food is better for the health of people and the environment. It puts the power of food distribution in local communities and ends poverty and hunger. We can grow tons of food on our lawns and on our rooftops.

## SLOW, SINK, & SPREAD WATER

Water that moves too fast causes erosion and sweeps precious minerals and topsoil into the ocean. Sink and spread water into the land using ponds, swales, and plants.

## WORK WITH NATURE'S PROCESSES

When you fight with nature, you lose. When you work with nature, everyone wins. Eat in season. Plant in season. Encourage natural processes. Listen to nature's rhythms.





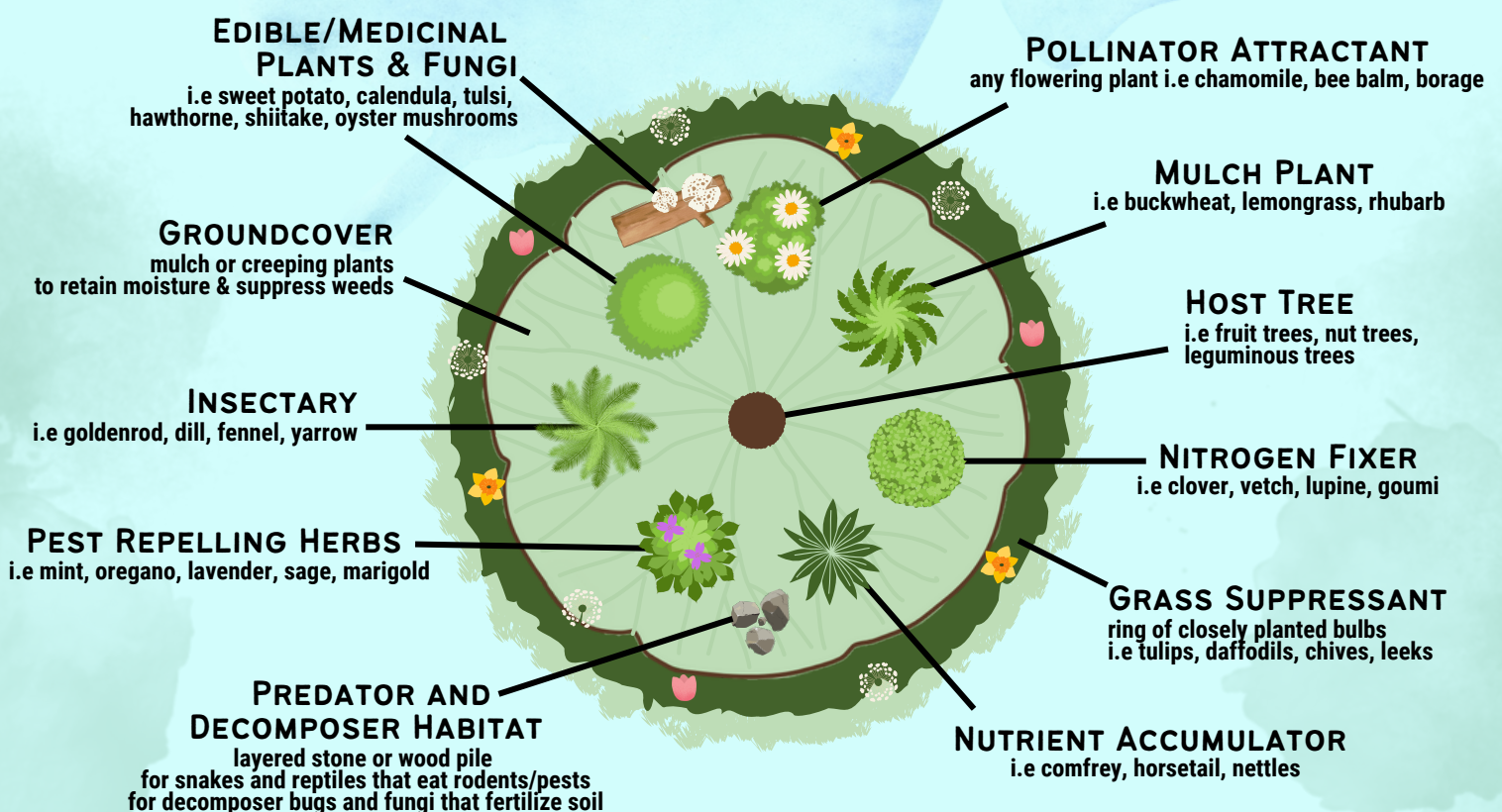
# TREE GUILDS & PLANT FUNCTIONS

Plants play an important role in permaculture. When choosing plants for a landscape it is important to think about what functions each plant has. What is their niche in the ecosystem? Where does the plant thrive? Putting plants where they will naturally thrive minimizes work on our part. Thinking about how we can get plants to work for us allows us to sit back and watch in awe as nature does its wonders. The same applies to all living things, not just plants.

A **tree guild** is an ancient gardening technique that mimics symbiotic interspecies relationships in nature. Multiple mutually beneficial species are planted together around a tree, which provide multiple plant functions in a supportive mini-ecosystem. Plants serve multiple functions to an ecosystem to be more resilient as well as serve purposes to meet human needs. Each plant should serve more than one function, and each function fulfilled by more than one plant. Some of these functions include:

- Edible fruit, seeds, vegetation, and roots
- Beauty, Aesthetics, Relaxation
- Erosion & Moisture Control
- Animal habitat and food
- Medicine
- **N fixers** - legumes convert nitrogen from air and soil into a form usable by other plants
- **Nutrient accumulators** - bring up vital minerals and micronutrients from lower levels of the soil up to the subsoil
- **Pest control** - deters noxious plants and/or insects, suppresses pest plants
- **Insectaries** - attracts beneficial insects, such as pollinators and insect predators
- **Biomass accumulator** - produces large amounts of vegetation to be cut and used as mulch, compost, and/or fertilizer
- Raw materials - crafting materials such as lumber and fiber
- Fuel sources - firewood, kindling, oil for biofuel, etc.

## EXAMPLE TREE GUILD



# THE 9 LAYERS OF A FOOD FOREST

from Robert Hart's 7 layers of a food forest and John Kitsteiner's "Nine Layers of the Edible Forest Garden"

Food forests have been around for millennia as a regenerative way to grow food and support habitat in a biodiverse ecosystem. The concept was popularized in the west by Robert Hart and adopted into permaculture by Bill Mollison.

- 1 Canopy** - Big trees over 30 ft (9m) high. This layer is not necessary in smaller food forests or orchards. Usually consists of timber, fruit, nut or leguminous (pea family) trees.
- 2 Sub-Canopy** - 10-30 ft (3-9m) tall trees, consisting of large shrubs and dwarf fruit, nut, leguminous trees.
- 3 Shrub** - Smaller shrubs up to 10 ft (3m) high. Consists of nut, fruit and berry bushes, flowering bushes and medicinal plants.
- 4 Herbaceous** - Typically consists of smaller bushes and herbs, some of which are annuals. Culinary herbs, medicinal plants, and smaller bushes with woody stems.

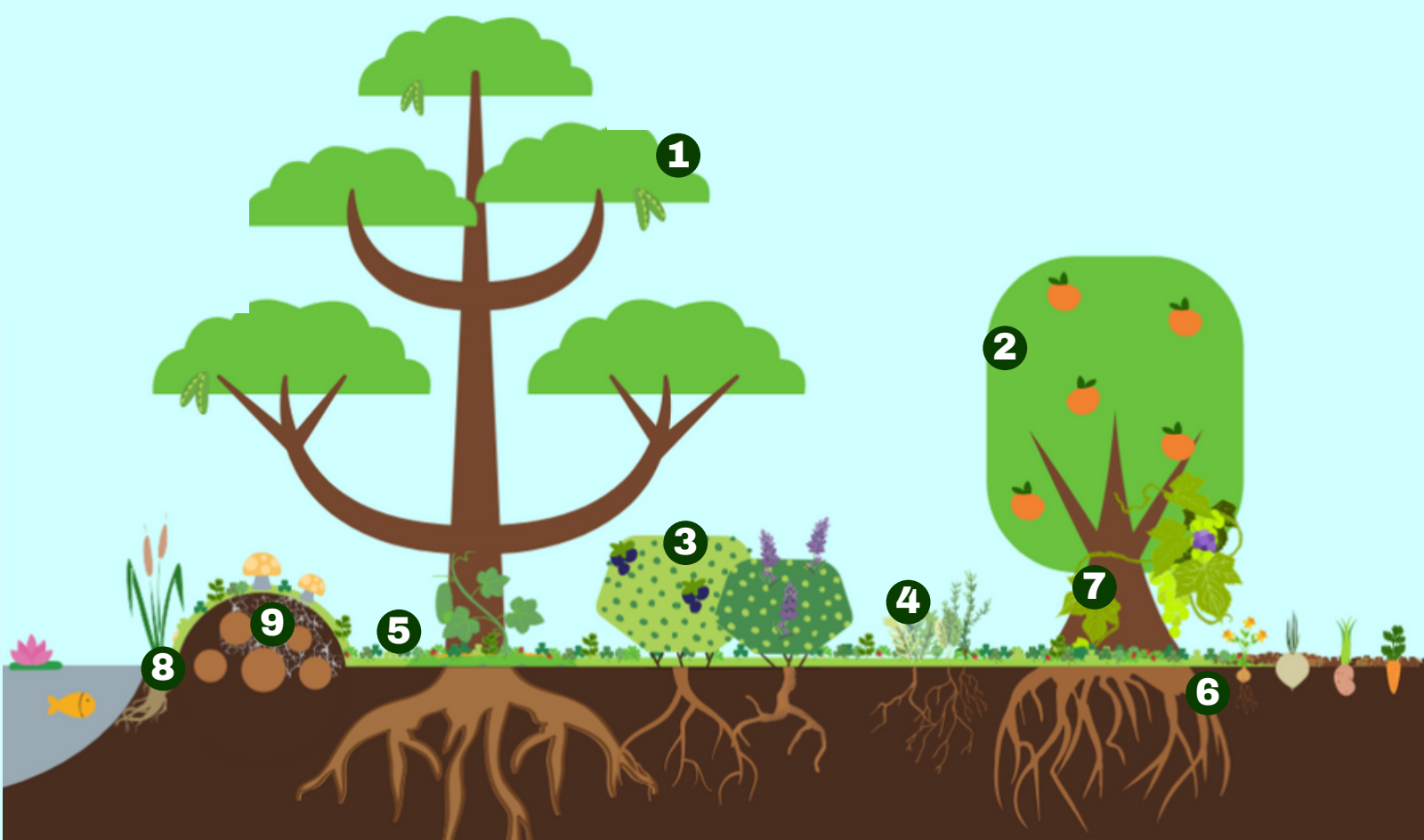
**5 Groundcover** - May overlap with herbaceous layer, with plants that grow closer to the ground, or creeping plants that tolerate foot traffic and cover patches of bare earth.

**6 Underground** - Edible and medicinal root crops that may also overlap with other layers of the food forest.

**7 Vertical / Climber** - Vines that climb tree trunks and trellises to maximize use of otherwise vacant vertical space.

**8 Aquatic / Wetland** - Hosts aquatic species and plants that grow on the edge between water and land. Can also act as water storage for other layers of the forest garden.

**9 Fungal / Mycelial** - Edible and medicinal mushrooms exist in this layer, as well as their mycelial networks (kind of like a fungus root system). Mycelium help to exchange nutrients underground and support the health of the plants around them.



# WHERE CAN I LEARN MORE?

Permaculture is taught all around the world by various teachers. If you're curious but don't want to invest too much time or money, there are lots of free online resources for learning permaculture, outlined below. If you'd like to go deeper into permaculture, I recommend taking a beginner's course with an experienced teacher in your bioregion. Attend some hands-on workshops or a permaculture work party ("Permablitz"). Once you're ready, you can take a 72-hour Permaculture Design Certification, which will give you foundational knowledge and tools to practice permaculture in your home and in your community.

## Free Online Resources

- **Heather Jo Flores** <https://www.freepermaculture.com/>
- **David Holmgren** <https://www.permacultureprinciples.com/>
- **Geoff Lawton** <https://www.discoverpermaculture.com/thepermaculturecircle>
- **Oregon State University** <https://tinyurl.com/permavids>
- **Online Forum for Questions & Discussion** <https://permies.com/forums/>

## Find permaculture courses and teachers through these Institutions:

### Africa & Global

Permaculture Gaia Network <http://www.permaculturegaiainetwork.org/>

### North America

Permaculture Institute of North America - <https://pina.in/>

Permaculture Institute - <https://permaculture.org/>

Permaculture Association of the Northeast - <https://northeastpermaculture.org/>

### South America

<https://www.permaculturedesignmagazine.com/latin-america>

### Europe

Permaculture Association (UK) - <https://www.permaculture.org.uk/>

European Permaculture Network - <https://permaculture-network.eu/>

### Asia

Permaculture Institute Asia <http://permacultureinstituteasia.com/>

### Australia

Permaculture Australia - <https://permacultureaustralia.org.au/>

Holgren Design - <https://holmgren.com.au/permaculture/permaculture-network/>

Permaculture Research Institute - <https://www.permaculturenews.org/>

## Take your learning deeper with these books and publications:

- An Introduction to Permaculture by Bill Mollison
- Earth User's Guide to Permaculture by Rosemary Morrow
- Gaia's Garden by Toby Hemenway
- Edible Forest Gardens by Dave Jacke
- Permaculture Principles & Pathways Beyond Sustainability by David Holmgren
- One-Straw Revolution by Masanobu Fukuoka
- Permaculture Design Magazine (US)
- Permaculture Magazine (UK)

Please reach out to me if you'd like help finding resources near you. This e-book and other resources are available on my website. I also teach permaculture in-person and online from time to time.

Colin Eldridge - Permaculture Teacher & Designer

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