

# University of California Cooperative Extension



## UC Master Gardener Program

**El Dorado County**

**Rich Mangel**

**UNIVERSITY OF CALIFORNIA**  
Agriculture and Natural Resources



# UCCE Master Gardener Program

UC Master Gardener Mission:

To extend research-based knowledge and information on home horticulture, pest management, and sustainable landscape practices to the residents of California and be guided by our core values and strategic initiatives.

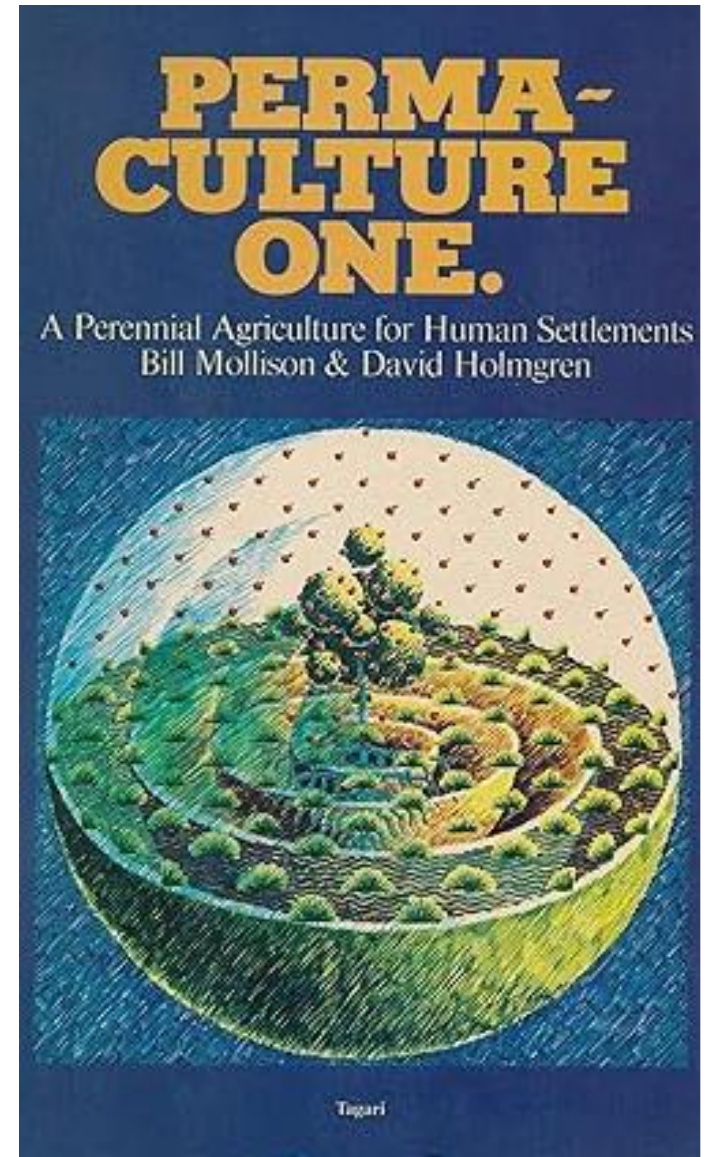
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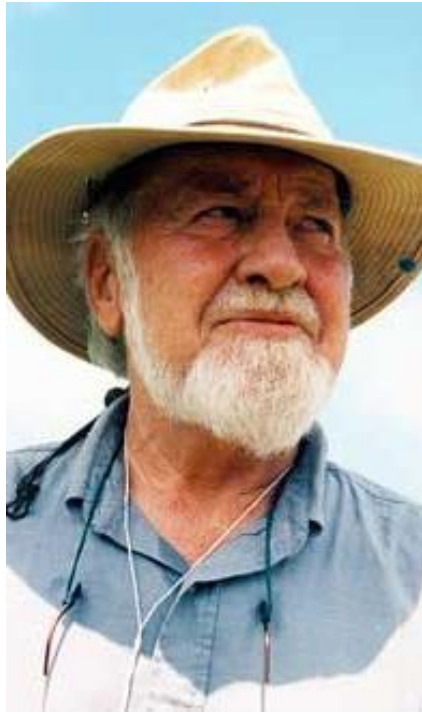
# Introduction to Permaculture

 **UNIVERSITY OF CALIFORNIA**  
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# Permaculture: Goals for Today

- Origin: Cofounders, What it is, and How it Started
- Building Blocks: Ethics, Principles, and Design Methods
- My Personal Experience: Permaculture Design Course, Costa Rica
- How to Apply Permaculture's Principles at Home and Garden





Bruce Charles "Bill" Mollison  
1928-2016 – Stanley, Tasmania

Researcher, Author, Scientist,  
Teacher and Biologist

Co-Founder of Permaculture

Father of the Permaculture  
Movement

## Cofounders of Permaculture: The Mentor and the Student



David Holmgren 1955  
Australia

Environmental  
Designer, Ecological  
Educator and Writer

Co-Founder of  
Permaculture



# How it Started – A Chance Meeting

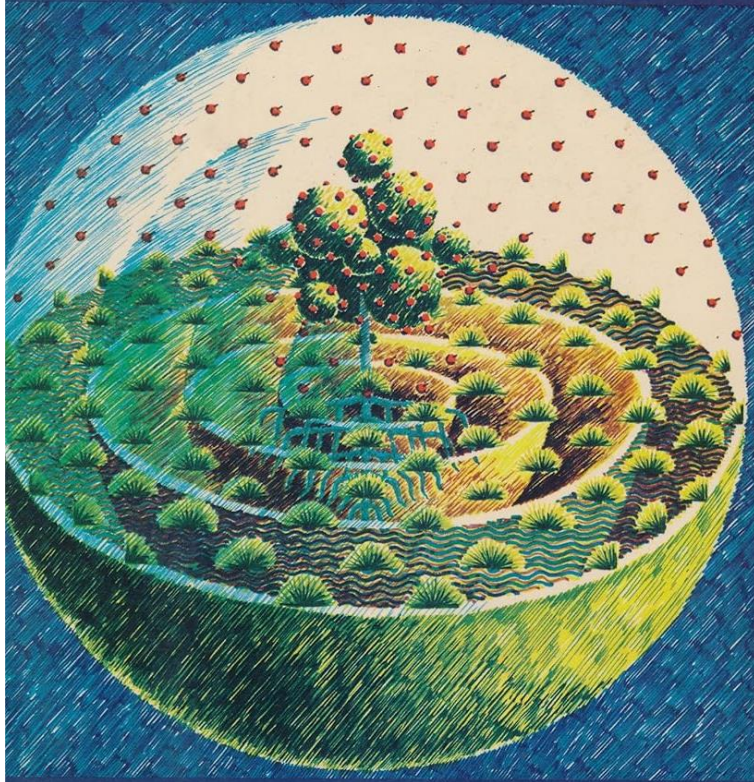
- *“His way of thinking and expression were fascinating; grounded but at same time, holistic. Ecological! I thought, but not like any of the activists who called themselves ecologists, or the academically trained ones, who seemed just as reductionist as most scientists.”*

- <https://holmgren.com.au/writing/a-chance-meeting/>



# PERMA- CULTURE ONE.

Perennial Agriculture for Human Settlements  
Bill Mollison & David Holmgren



Tagari

## The Start of the Permaculture Movement

**Bill Mollison and David Holmgren**



1978 Landmark publication Permaculture One  
begins movement



# WHAT IS PERMACULTURE?

*Described by Bill Mollison and David Holmgren*





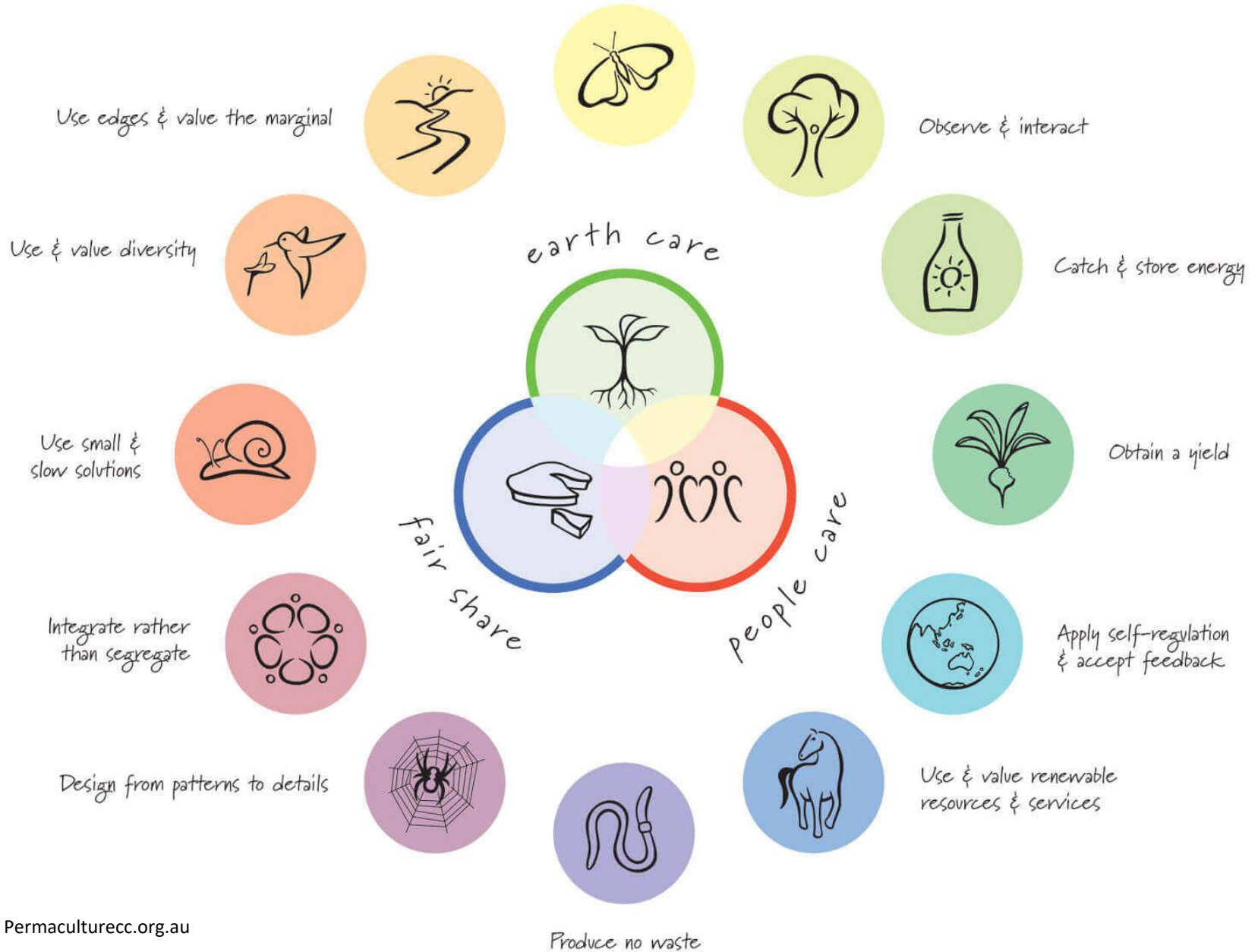
# What is Permaculture?

- Permanens – to persist indefinitely
- Culture – the practices that supports human occupation

## **A persistent system that supports human existence (Indefinitely)**

- Conscious functional design – Permaculture design is the first system of conscious function design system in the world.
- Permaculture is really a design system for both sustainable land use and sustainable living.

Creatively use & respond to change



# Methodologies – Informational, Analytical and Design

## Information Gathering

- Observation
- Community Engagement
- Data Gathering, Resource Assessment, Map the property, Soil assessment
- Client Interview – Mission Statement, Vision, Set Goals  
Analyze Needs, Resources, Goals
- Experimentation

## Analytical

- Zone Analysis
- Scale of Permanence
- Sector Analysis
- Brittleness Scale
- Slope, Aspect, and Elevation Analysis
- Needs and Yields Analysis

## Analytical (Cont.)

- Soil, Climate, History of the land
- Flow Diagrams
- Triple Constraints Triangle
- Holistic Decision Making
- Systems Thinking
- Feedback Loops
- Random Assembly
- Pattern Understanding

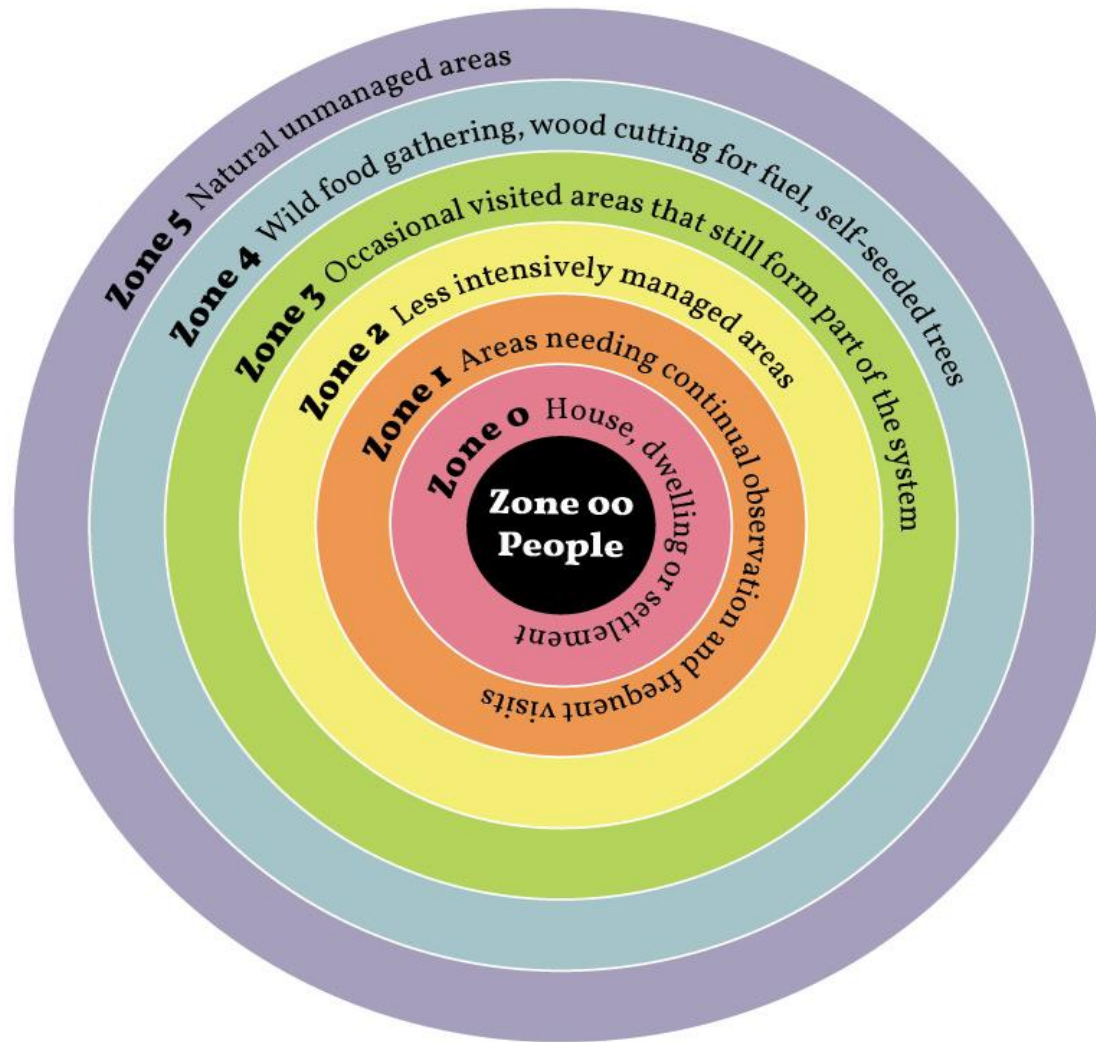
## • Design

- Wild Design
- Mimic Nature
- Random Assembly
- Climate and Ecological Analogues
- Spontaneous Insights

## Additional Information on Permaculture Methodologies-

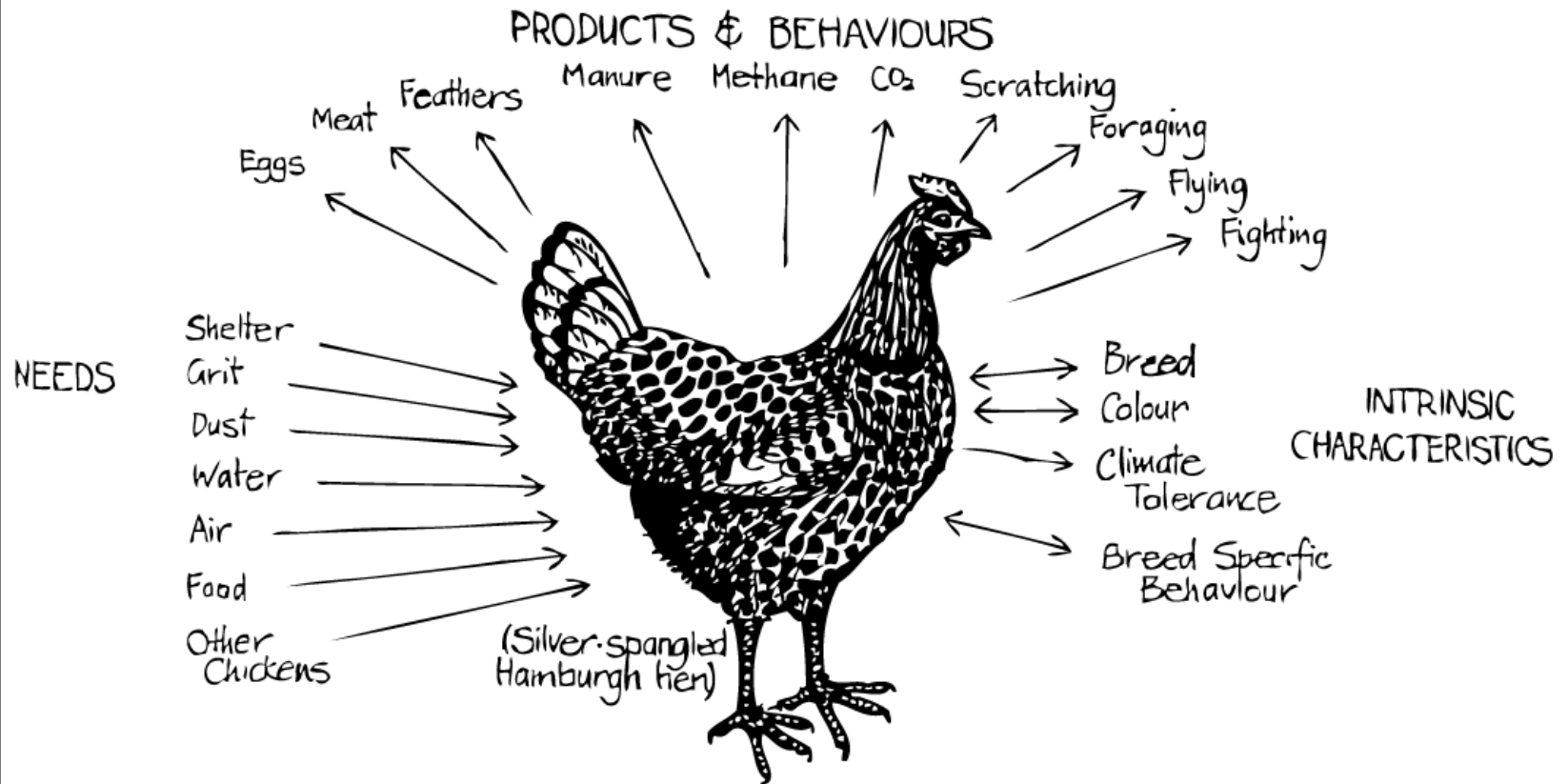
[www.fsnnetwork.org/sites/default/files/Permaculture\\_Methodologies\\_WB.pdf](http://www.fsnnetwork.org/sites/default/files/Permaculture_Methodologies_WB.pdf)

# Zones





# Needs and Yields

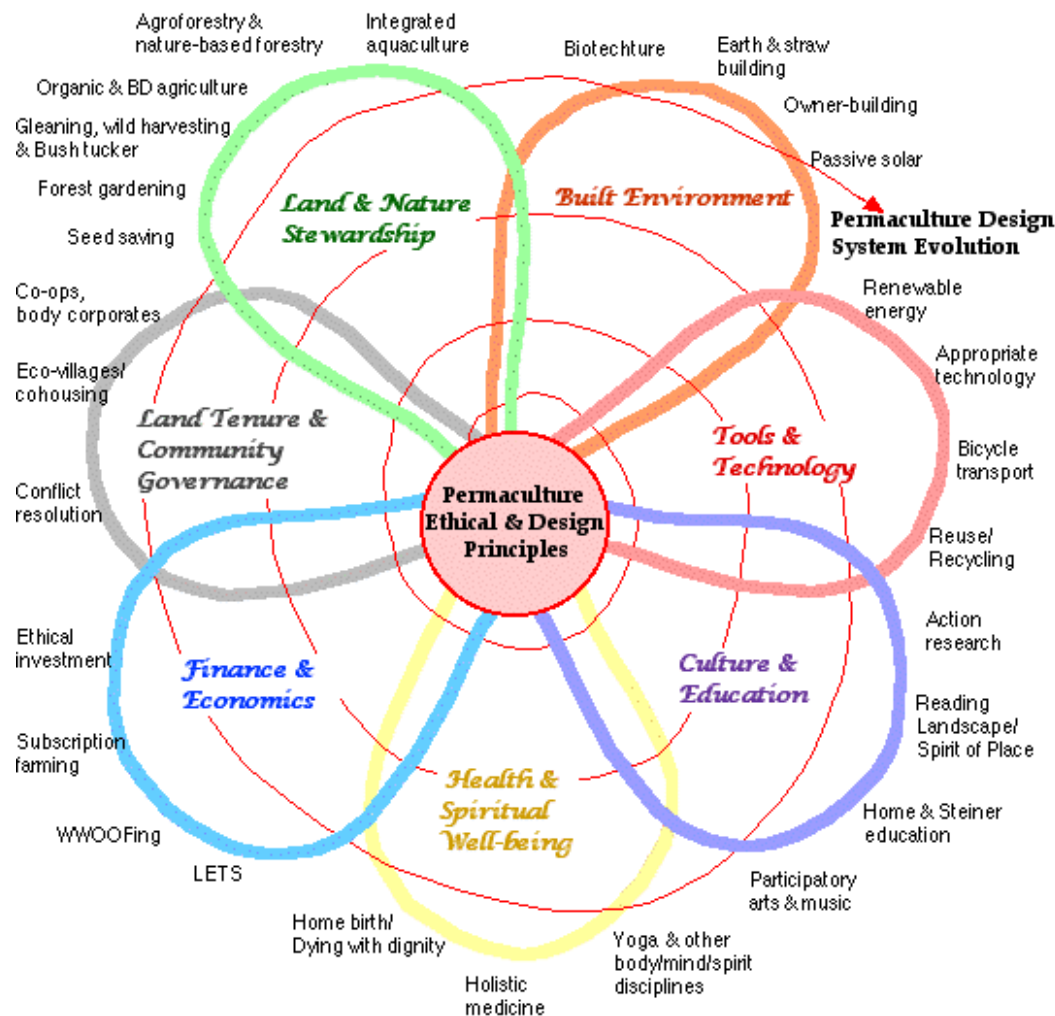


Microfardenns.com

[https://static1.1.sqspcdn.com/static/f/1117046/21663668/1358377190597/permaculture\\_chicken.jpg?token=qdV0aqQYEeMe22sBDTeGeN0CWN0%3D](https://static1.1.sqspcdn.com/static/f/1117046/21663668/1358377190597/permaculture_chicken.jpg?token=qdV0aqQYEeMe22sBDTeGeN0CWN0%3D)

# The Permaculture Flower

Starting with ethics and principles focused in the critical domain of land and nature stewardship, permaculture is evolving by progressive application of principles to the integration of all seven domains necessary to sustain humanity through energy descent.



- Goal Setting
- Decision Making
- Community Engagement
- Pattern Language
- Invisible Structures
- Appropriate Technologies
- Stacking functions
- Water Management – Storage, Drainage, Irrigation, Swales, Keyline Design, Gray and Black Water
- Soil building – Soil Fertility, Composting, Vermiculture, No-till, Indigenous Microorganisms (IMO), Biochar, Korean natural farming
- Black water treatment – composting toilet, biodigester
- Forestry, Agroforestry, Analog Forestry
- Planting, Propagation, Mulch, Chop & Drop
- Natural Building, Impacts of building and construction, bamboo, timber, etc.
- Animal Husbandry
- Fermentation
- Soap Making

Figure 1 Introduction, *Permaculture: Principles & Pathways Beyond Sustainability* 2002

# My Experience: Permaculture Design Course Costa Rica 2022





# Applying Permaculture Ethics and Principles into Your Garden and Lifestyle

- Observe and Interact – Stop and smell the roses
- Create a plan – Define your goals, write them down, make a sketch, match them to the ethics and principles
- Grow perennials – Fruits, berries, nuts, asparagus, artichokes, chives, rhubarb
- Feed the soil – Compost, mulch, organic fertilizers, cover crops, no bare soil, eliminate or reduce lawn
- Integrated Pest Management (IPM) – Limit or eliminate the use of chemical pesticides, herbicides and fertilizers, look for least lethal solution



# Applying Permaculture Ethics and Principles into Your Garden and Lifestyle (cont.)

- Provide shelter, water, food (plants) for wildlife
- Reduce Waste – Conserve, Recycle, Re-use, Freecycle, Water-wise
- Buy Local, Organic, Pasture and Ethically Raised – Support local cooperatives
- Buy or make your own biodegradable soaps  
(especially important if you are on septic)
- Food Preservation – Freezing, canning, drying, fermenting, curing, smoking, freeze drying, root cellar
- Community engagement/development

# Recap

- Permaculture - Many definitions – design system, philosophy, way of life/living, how to co-exist in harmony with nature
  - Permanens – to persist through time
  - Culture – an activity that supports human existence

## **A persistent system that supports human existence**

- Founders - Bill Mollison and David Holmgren
- Sustainable – Evolved into Regenerative
- Conscious Functional Design - Harmonize human needs and ecology
- Built upon 3 Ethics and 12 Principles, uses a multitude of Design Methodologies
- PDC (Permaculture Design Course) teaches the Permaculture Design System, how to design a property, and how to incorporate Permaculture into your landscape and life

# Additional Resources

## Books by Bill Mollison

- *Permaculture Two – Practical Design for Town and Country in Permanent Agriculture* – 1979
- *Permaculture – A Designer's Manual* – 601 pages – 1988
- *Introduction to Permaculture* – A series of 15 pamphlets based on the 1981 Permaculture design course given by Bill Mollison – 1991  
<https://planetschooling.com/bill-mollisons-classic-pamphlets/>

## Books by David Holmgren

- *Sustainable Living at Melliadora Hepburn Permaculture Gardens: A Case Study in Cool Climate - Permaculture* – 1985-1995
- *Permaculture: Principles and Pathways beyond sustainability* – 2002
- *Essence of Permaculture* – 2008
- *RetroSuburbia* – 2018

# Additional Resources (cont.)

## Permaculture/Regenerative Ag Books

- *Gaia's Garden* by Toby Hemenway
- *Restoration Agriculture* by Mark Shepard
- *One-Straw Revolution* by Masanobu Fukuoka
- *Dirt to Soil* – Gabe Brown
- *Water for Every Farm" Yeomans Keyline Plan* - P. A. Yeoman
- *Holistic Management* – Allan Savory with Jody Butterfield
- *Regenerative Agriculture - A Practical Whole Systems Guide to Making Small Farms Work* – Richard Perkins
- *Soil science for Regenerative Agriculture* – Amelie de Plantes
- *The Resilient Farm and Homestead* - Ben Falk
- *Sepp Holzer's Permaculture: A Practical Guide to Small-Scale, Integrative Farming and Gardening* – Sepp Holzer

## General Garden Books

- *Soil Science for Gardeners* – Robert Pavlis
- *"Teaming with" Series* - Nutrients, Bacteria, Fungi - Jeff Lowenfels
- *Teaming with Microbes* – Jeff Lowenfels and Wayne Lewis
- *The Hidden Life of Trees* – Peter Wohlleben
- *Second Nature* - Michael Pollan
- *Natures Best Hope, Bringing Nature Home* - Douglas Tallamy



# Additional Resources (cont.)

## Podcasts:

- Urban Farm Podcast - Greg Peterson
- Joe Gardener Podcast - Joe Lamp'l
- Down to Earth Podcast – Mary-Charlotte Domandi
- A way to Garden – Margaret Roach
- The Permaculture Podcast – Scott Mann

## Websites:

- <https://permies.com/>
- <https://Permaculture.org>
- <https://Permaculturedesign.org>
- <https://Permies.com>
- <https://Worldpermacultureassociation.com>
- <https://Permalogica.com>
- <https://Permaculturepractice.com>
- <https://Permacultureapprentice.com>

# Additional Resources (cont.)

## Prominent Permaculture Advocates

- Geoff Lawton – Permaculture Research Institution, Greening the Desert Project
- Elain Engam – Soil biology – Soil Food Web – several books
- Rob Avis – Verge Permaculture – *Building your Permaculture Property*
- Takota Coen – Coen Farms – *Building your Permaculture Property*
- Stefan Sobkowiak – Miracle Farms – Permaculture Orchard Video
- Sepp Holzer – *Sepp Holzer's Permaculture: A Practical Guide to Small-Scale, Integrative Farming and Gardening*

# Videos and Documentaries

- Bill and David on “What is Permaculture” – Quick introduction from both founders  
<https://www.youtube.com/watch?v=QBLKuYDh5S8>
- Dogsgowoo Productions – “Permaculture The Documentary” – How it Started  
<https://www.youtube.com/watch?v=Syw1yfaWieQ>
- Bosco’s Garden – “Bill Mollison – The Father of Permaculture” – documentary about Bill Mollison  
<https://www.youtube.com/watch?v=zYlgBCA6ou0>
- Bosco’s Garden - “The Story of Permaculture” – a documentary about some of the many contributors to permaculture since its origination. <https://duckduckgo.com/?q=bill+mollison+permaculture&atb=v314-1&iax=videos&ia=videos&iai=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DqTucK0bxT98>
- Tour of David Holmgren’s “Melliodora” property  
<https://duckduckgo.com/?q=melliodora+permaculture+tour+video&atb=v314-1&iax=videos&ia=videos&iai=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3Dss1BjW2kSNs>
- Kiss the Ground  
<https://vimeo.com/ondemand/kisstheground/>
- Oregon State University Permaculture design series of short courses  
[https://www.youtube.com/playlist?list=PLge-w8RyhkLbaMqxKqjg\\_pn5iLqSfrvlj](https://www.youtube.com/playlist?list=PLge-w8RyhkLbaMqxKqjg_pn5iLqSfrvlj)





