AN INTRODUCTION TO PERMACULTURE

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OUTLINE

- History
- Philosophy of Permaculture
- Concepts & Themes in Design
- Methods of Design
- Patterns
- Climate
- Trees

- Water
- Soils
- Earthworks
- Humid Tropics / Dryland Strategies
- Humid Cool to Cold Climates
- Aquaculture
- Examples / Key Elements
- Key Players
EARLY HISTORY

- Created by Bill Mollison & David Holmgren in mid 1970's
- Bill was born in 1928 in Stanley, Tasmania
- Bill worked in various jobs until age 26 when he went to work as a biologist in remote locations in Australia working for the government
- Returned to school at age 38 and got his degree in bio-geography.
- In 1974 he and David Holmgren developed and refined the permaculture concept and published Permaculture One and Permaculture Two (a series of papers)
- Since 1978 and up until his recent passing Bill dedicated and devoted all his energy to spreading the ideas and principle worldwide thru the Permaculture Research Institute teach Permaculture Classes (72 hours) typically 10 days.
- Permaculture (permanent agriculture) is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability and resilience of natural systems. It is the harmonious integration of landscape and people providing their food, energy, shelter and other material and non-material needs in a sustainable way.
WHAT IS THE PERMACULTURE RESEARCH INSTITUTE

The Permaculture Research Institute (PRI) is located on a Permaculture demonstration site in The Channon NSW, and is headed by Geoff & Nadia Lawton. We specialize in education & training worldwide. We also provide daily Permaculture news and information via permaculturenews.org. The Permaculture Research Institute is a not-for-profit organisation, limited by guarantee.

HISTORY

Permaculture founder Bill Mollison established the first Permaculture Institute in 1979 to teach the practical applications of Permaculture design. It was housed on a 147-acre farmstead named Tagari Farm in Northern NSW, Australia. Bill Mollison is the co-founder of permaculture, which was first described in the book ‘Permaculture One’, in 1978. Upon his retirement in October 1997, Bill asked Geoff to establish and direct a new institute on the property. Geoff agreed and continued developing the Farm over a three-year period. During this time, Geoff established the Permaculture Research Institute we all know and love today and after three years he moved it to Zaytuna Farm.
PHILOSOPHY OF PERMACULTURE

• The Prime Directive of permaculture
  • The only ethical decision is to take responsibility for our own existence and that of our children.

• Ethics of Permaculture
  • Care of the earth
  • Care of People
  • Return of Surplus / Setting limits on consumption
CONCEPTS & THEMES IN PERMACULTURE DESIGN

- Science
- Application of laws and principles
- Resources
- Cycles
- Pyramids, food webs and growth
- Complexity & Connections
- Order or Chaos
- Permitted and forced functions
- Diversity
- Stability
- Time and yield
- Summary of Principles
## DESIGN METHODS IN PERMACULTURE

- Analysis by listing characteristics of components
- Design by Observation
- Deduction by lessons learned in nature
- Design based on decisions and options
- Data Overlay
- Random assembly
- Flow Diagrams

- Zone and Sector Analysis
- Design by pattern
- Incremental Design
- Concept of guilds in nature
- Succession and evolution of a system
- Practical procedures in property design
- Summary of design methods
ZONE ANALYSIS

Zone 1
Every day: living areas, eggs and crops for dinner

Zone 2
Every other day: coop, house edge, berries, and garden

Zone 3
Twice a week: berries and chicken flock

Zone 4
Every week: fruit trees, chicken run

Zone 5
Every month: deer barrier & woodlot
PATTERN UNDERSTANDING IN PERMACULTURE

- General Pattern models
- Matrices and strategy of compacting and complexing components
- Properties of media
- Boundary conditions
- Harmonics and geometry of boundaries
- Compatible borders vs Incompatible Borders
- Time and shaping events
- Spirals
- Flow over landscape
- Open Flow and flow patterns
- Branching and Orders of Magnitude
- Pattern Applications
- Designers Checklist
CLIMACTIC FACTORS IN PERMACULTURE

• Classification of broad zones
• Energies of the atmosphere and global weather patterns
• Precipitation
• Radiation

• Wind effects (Prevailing Winds)
• Landscape Effects
• Latitude Effects
• Check list
PATH OF THE SUN
TREES AND THEIR ENERGY IN PERMACULTURE

- Biomass of a tree
- Wind Effect
- Temperature Effects
- Trees and precipitation
- Trees and rain
WATER ENERGY IN PERMACULTURE DESIGN

- Regional intervention in the water cycle
- Earthworks for conservation and storage
- Reduction of water in sewer systems
- Purification of polluted waters
SOILS AND SOIL HEALTH IN PERMACULTURE

- Soil and health
- Structure of soil
- Soil and water
- Primary nutrients for plants
- Element distribution within the soil profile
- Soil pH
- Soil composition
- Soil pores and crumb structure
- Biological indicators of soil conditions
- Soil erosion
- Soil rehabilitation
- Life in earth
EARTHWORKS IN PERMACULTURE DESIGN

- Planning
- Planting after earthworks
- Slope measurements
- Levels
- Types of earthworks
- Earth constructs
- Moving earth
HUMID TROPICS & DRYLAND STRATEGIES IN PERMACULTURE DESIGN

- Planning
- Types
HUMID COOL TO COLD CLIMATES IN PERMACULTURE DESIGN

- Planning
- Types
AQUACULTURE IN PERMACULTURE DESIGN

- The case for aquaculture
- Factors affecting useful yields
- Choice of fish
- Fish pond configurations
- Farming invertebrates for fish food
- Channel, Canal & Chinampa
- Yields outside the pond
- Bringing in the harvest
- Traditional water polycultures
- New water polycultures
EXAMPLES OF PERMACULTURE

- Geoff Lawton  Greening the Desert
- 10 Acre site in Jordan
- Minimal rainfall
- Used Swales and fast growing trees to help create biomass
PERMACULTURE DESIGN COMPONENTS/ELEMENTS

- Swales / Micro-Swales
- Hugelkultur
- Keyhole Bed Design
- Food Forests
- Herb Spiral
- Seed Balls
- Chicken Tractors
HUGELKULTURE
KEYHOLE BED DESIGN

A mandala garden. A circular pattern of nested keyhole beds is both beautiful and space-conserving.
FOREST GARDEN

Nine Layers of the Edible Forest Garden

1. Canopy/Tall Tree Layer
2. Sub-Canopy/Large Shrub Layer
3. Shrub Layer
4. Herbaceous Layer
5. Groundcover/Creeper Layer
6. Underground Layer
7. Vertical/Climber Layer
8. Aquatic/Wetland Layer
9. Mycelial/Fungal Layer
In south hemisphere, build spiral counter clockwise

An herb spiral combines a two-dimensional pattern (a spiral) with a three-dimensional one (a mound) to form a beautiful and space-saving living sculpture that has several microclimates.
SEED BALLS
CHICKEN TRACTORS

CHICKEN TRACTOR
A MOVEABLE COOP

THREE BENEFITS OF A CHICKEN TRACTOR

1. Chickens change places over time.
2. Fresh forages are continually consumed.
3. Manure fertilizes soil, but doesn’t build up under birds.
## Key Players in Permaculture

<table>
<thead>
<tr>
<th>Name</th>
<th>Role, Contributions</th>
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<tbody>
<tr>
<td>Geoff Lawton</td>
<td>Runs Permaculture Research Institute (PRI), teaches classes all over the world and runs Zaytuna Farm in NSW Australia, Previously worked with Bill Mollison at Tagari Farm.</td>
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<tr>
<td>Paul Wheaton</td>
<td>The duke of permaculture, forums at Permies.com and runs a hundred acre farm in Montana, podcaster</td>
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<tr>
<td>Eric Toesenmier</td>
<td>Award-winning author of Paradise Lot and Perennial Vegetables, and the co-author of Edible Forest Gardens.</td>
</tr>
<tr>
<td>Diego Footer</td>
<td>Founder of Permaculture Voices with a goal to go out and motivate and inspire people to push the limits, do great work, and live the life that they want to live through permaculture and agriculture, podcaster</td>
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<tr>
<td>Jack Spirko</td>
<td>Founder of The Survival Podcast &amp; Founder of Permaethos, podcaster</td>
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<tr>
<td>Ben Falk</td>
<td>Whole Systems Design, Vermont permaculture farm.</td>
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KEY PLAYERS IN PERMACULTURE

- Masanobu Fukuoka - *Masanobu Fukuoka - The One-Straw Revolution*
- Mark Sheperd - Manages *New Forest Farm*, the 106-acre perennial agricultural savannah in Wisconsin
- Sepp Hoolzer - Krameterhof farm in Austria
- Toby Hemenway - Author of Gia’s Garden
- Amy Stross - Author of *The Suburban Micro-Farm*