OSU Master Gardener Training 2018

PERMACULTURE BASICS FOR GARDENERS

Michelle Sager
OSU Extension Service, Wasco County

Oregon State University

Learning Objectives

1. Understand the foundations of Permaculture.
2. Learn the design aims of Permaculture.
3. Examples of Permaculture design techniques for backyard gardens
4. Practice at designing / applying principles

Urban centers ~6% arable land

But use ~40-75%

- Farmland
- Timberland
- Grazing and feedlots
- Mining
- Reservoirs
- Military bases

Permaculture Ethics

What is Permaculture?

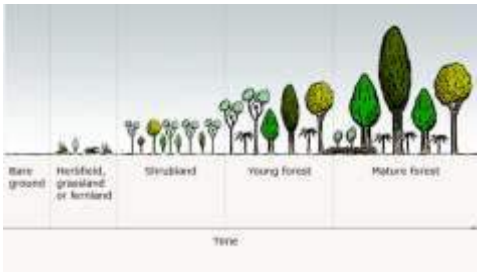
What is Permaculture?

"Permaculture is consciously-designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for provision of local needs."

David Holmgren, *Permaculture: Principles & Pathways Beyond Sustainability*

Prairie and Savanna

- Low rainfall
- Heavy grazing
- Frequent fire



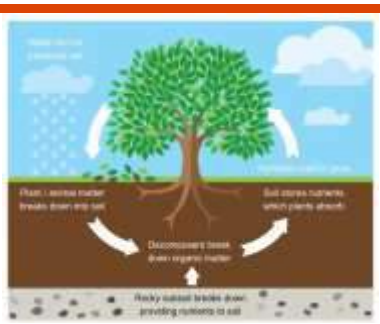
Modeled after mature landscape?

Modeled after mature landscape?

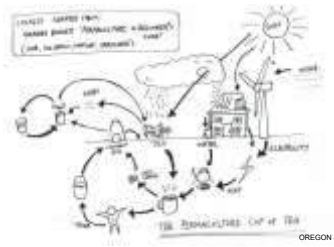
- Deep soils with organic matter
- Recycles nutrients (closed cycles)
- Mostly perennial plants
- Biodiversity
- Many layers of vegetation
- Plants that are multi-functional

Cultivating an Ecosystem

A system, or a group of interconnected elements, formed by the interaction of organisms with their environment



The Permaculture Cup of Tea



"Permaculture Design is not the rain, the roof, or the garden. Permaculture Design is the connections between these things. Permaculture brings cohesion where there was once isolation."

-Bill Mollison

Pear Tree – Needs & Yields Assessment

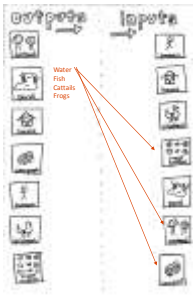
Needs

- Water
- Nutrients
- Pollen
- Pollinators
- Protection from pests
- Pruning

Yields

- Fruit
- Pollen
- Seasonal shade
- Privacy (seasonal)
- Windbreak
- Mulch & Soil Building

Output not used = **waste**



Input not provided = **work**

"You don't have a snail problem… you have a duck deficiency!"

- Bill Mollison

Let the problems guide the solutions

Sectors

- Sun
- Wind
- Fire
- Wildlife
- View
- Others?
  - Flooding, pollution, noise, traffic, crime, etc.





The problem is the solution!

Design Aims

- Let the problems guide the solutions.
- Build soil and store water.
- Obtain many yields
- Stack functions
- Add biodiversity and garden in layers.
- Put waste back into the system.

Sheet Mulch (composting in place)

1. layer of cardboard, newspaper, fabric, etc.

2. a foot of organic mulch (layered carbon / nitrogen)

Gathering materials
- You need a lot!
- Waste = Food… use something appropriate to where you live

Best to do it in fall

Sheet Mulching

Sheet mulching around newly-planted perennials

Hugelkultur

- Pile branches/brush 1-3 ft
- Add compostable materials – grass clippings, straw, etc.
- Moisten pile
- Add compost and/or soil

Holds moisture
Releases nutrients slowly

Hugelkultur

- Diseased branches?
- Nutrient leaching?

Always make observations first. Always look at what research is available.

Is there research available?

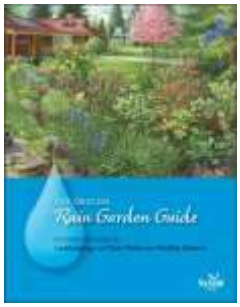
Swales

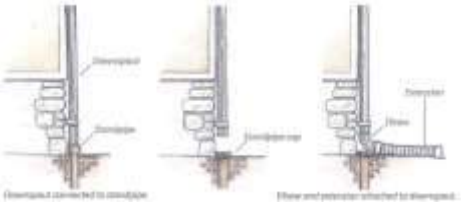
- Sunken
- Flat bottom – on contour
- **Designed to:** capture and slow water

Laid out on contour so water doesn't flow along it, but instead slowly percolates into the soil

Rain Gardens

- Sunken, flat-bottomed garden bed
- Collects and treats stormwater runoff from rooftops, driveways, sidewalks, parking lots, and streets
- Filters out urban pollutants





Designing your Garden

Design Aims

- Let the problems guide the solutions
- Build soil and store water
- Obtain many yields
- Stack functions
- Add layers and biodiversity
- Put waste back into the system

African Keyhole Design

- Build soil and store water
- Obtain many yields
- Add biodiversity and layers
- Stack functions
- Make connections between elements
- Let the problems guide the solutions

Keyhole Garden Beds

Hedgerows / Living Fences

- Defines boundaries / edges
- Water stored in biomass
- Edible possibilities (Fedge!)
- Noise reduction
- Windbreak
- Soil Stabilization
- Wildlife Corridor
- Attract beneficial insects

Edible Hedge

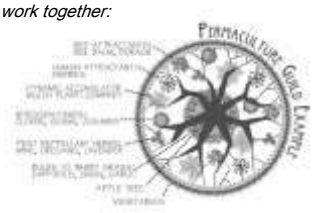
- Plums
- Apples
- Quince
- Hawthorne
- Mulberry

Espalier – training method

Guilds

Group of plants chosen to work together:

- Produce food
- Attract beneficial insects
- Deter wildlife
- Fertilize
- Mulch
- Suppress grass
- Create habitat



Three Sisters

North American Traditional

- Corn *(trellis for beans*
- Beans *(nitrogen fixer*
- Squash *(living mulch)*

Dynamic Accumulators

Fact or Fiction?

What we *do* know:

- Phytoaccumulation does happen

What we *don't* know:

- If the plant will make those minerals available to the soil and if they do, how long will it take?

Herb Spiral

- Many microclimates
- Hot on south side, cool on north side
- Drier at the top, moist at the bottom
- Vertical design

Observation

- What kind of **soil** do I have? Is it all the same?
- Where in my yard gets the most **sun**? The least?
- Where does **water** flow in my yard? Where does it puddle?
- Which direction does the **wind** come from?
- Which **plant** species are growing naturally here?
- Which **wildlife** friends visit my yard?

…through the day and through the seasons

Site Analysis + Design Aims

- Let the problems guide the solutions.
- Build soil and store water.
- Obtain many yields
- Stack functions
- Add biodiversity and garden in layers.
- Put waste back into the system.