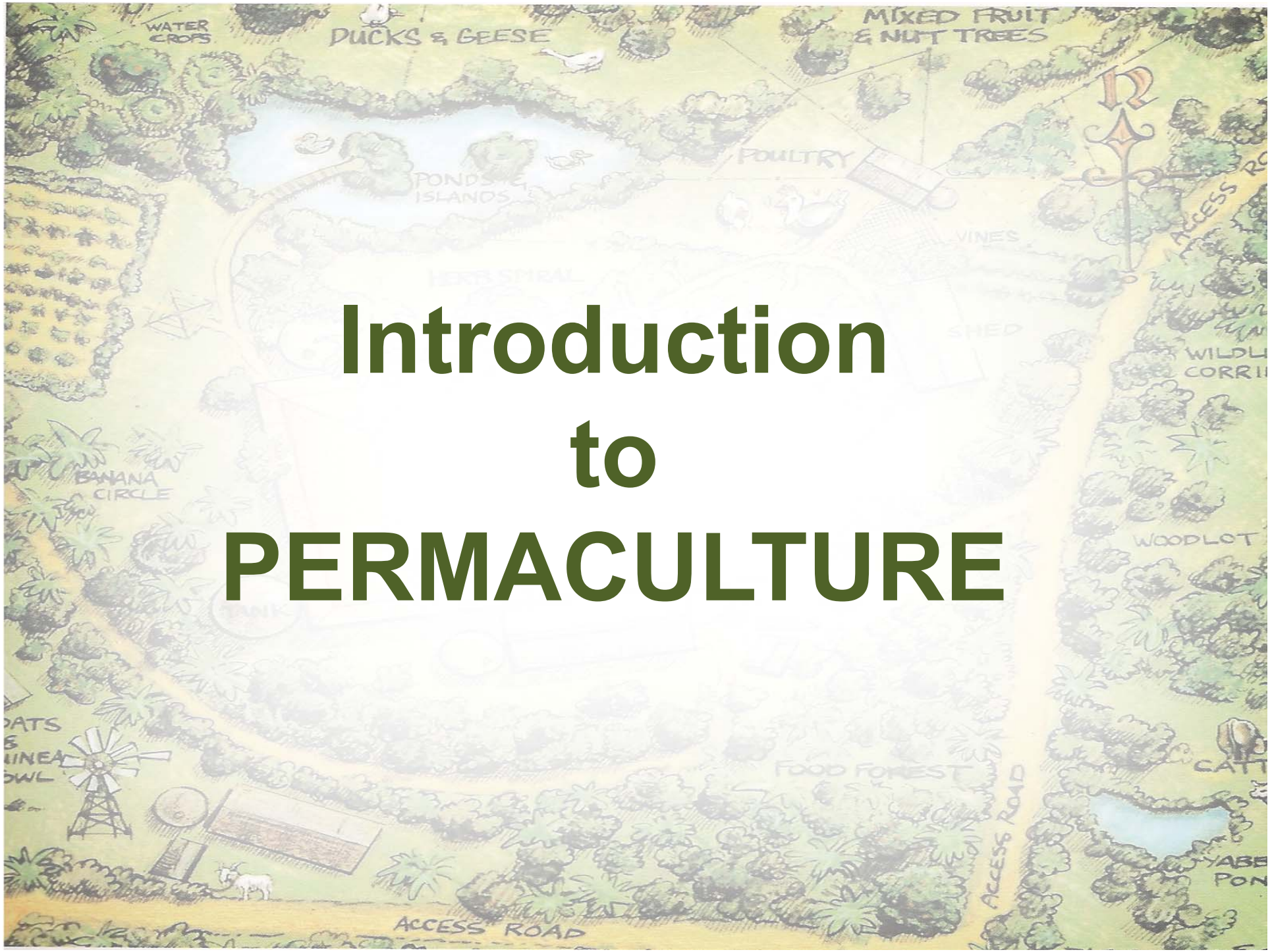
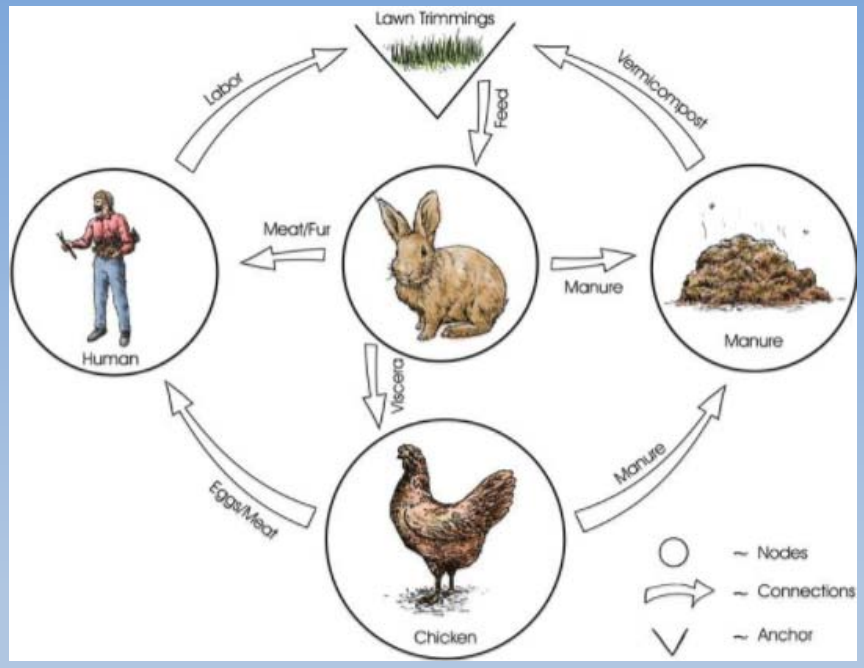
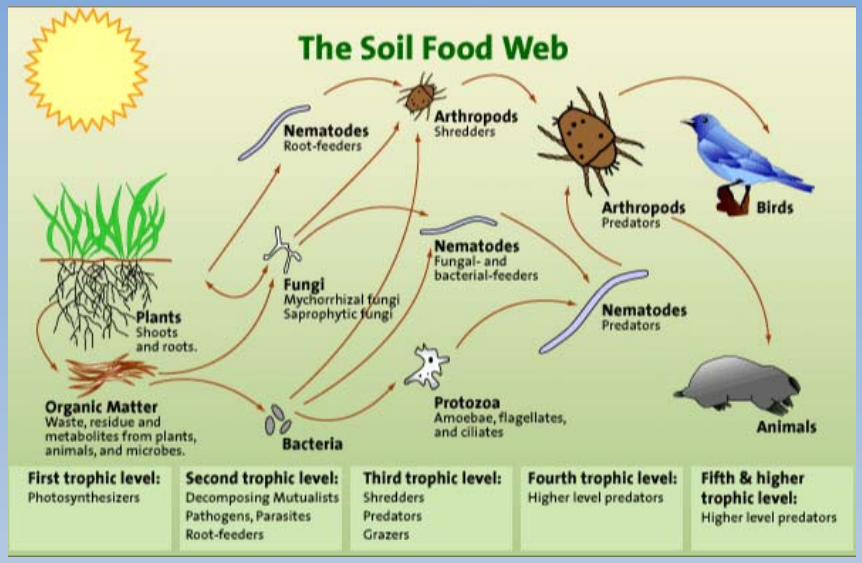


Introduction to PERMACULTURE


Lawn Trimmings
Labor
Feed
Vermicompost
Meat/Fur
Manure
Human
Manure
Viscera
Eggs/Meat
Manure
Chicken
Nodes
Connections
Anchor


The Soil Food Web
Nematodes
Root-feeders
Arthropods
Shredders
Arthropods
Predators
Birds
Nematodes
Fungal- and
bacterial-feeders
Fungi
Mychorrhizal fungi
Saprophytic fungi
Nematodes
Predators
Plants
Shoots
and roots.
Organic Matter
Waste, residue and
metabolites from plants,
animals, and microbes.
Bacteria
Protozoa
Amoebae, flagellates,
and ciliates
Animals
First trophic level:
Photosynthesizers
Second trophic level:
Decomposing Mutualists
Pathogens, Parasites
Root-feeders
Third trophic level:
Shredders
Predators
Grazers
Fourth trophic level:
Higher level predators
Fifth & higher
trophic level:
Higher level predators

My Journey

SOILS
PLANTS
WATER
ECOLOGY

SPIRITUALITY
AESTHETICS
CREATIVITY

FOOD
FIBER
FUEL

NEEDS
PROBLEM SOLVING
COMMUNITY BUILDING

Permaculture

Elements of a Total Permaculture Design

Permaculture is a ***DESIGN SYSTEM*** which seeks to draw ideas from the universal principles of nature (ecology).

The way things work in nature can be employed in human systems to provide our needs without degrading nature.

Our Food Future

Linear or sustainably cyclical?

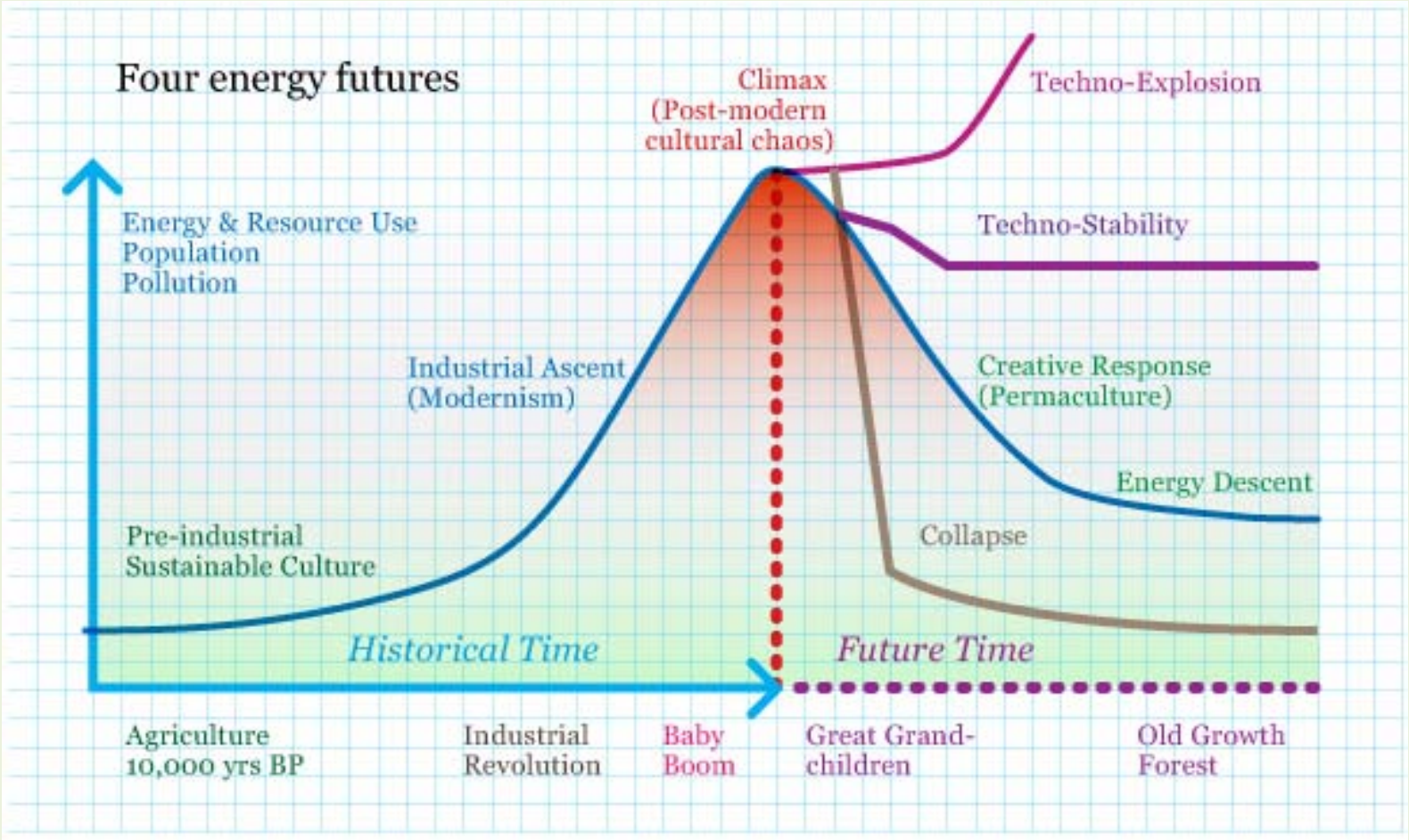


The modern, commercial agricultural miracle that feeds us and much of the rest of the world is completely dependent on the flow, processing and distribution of oil.

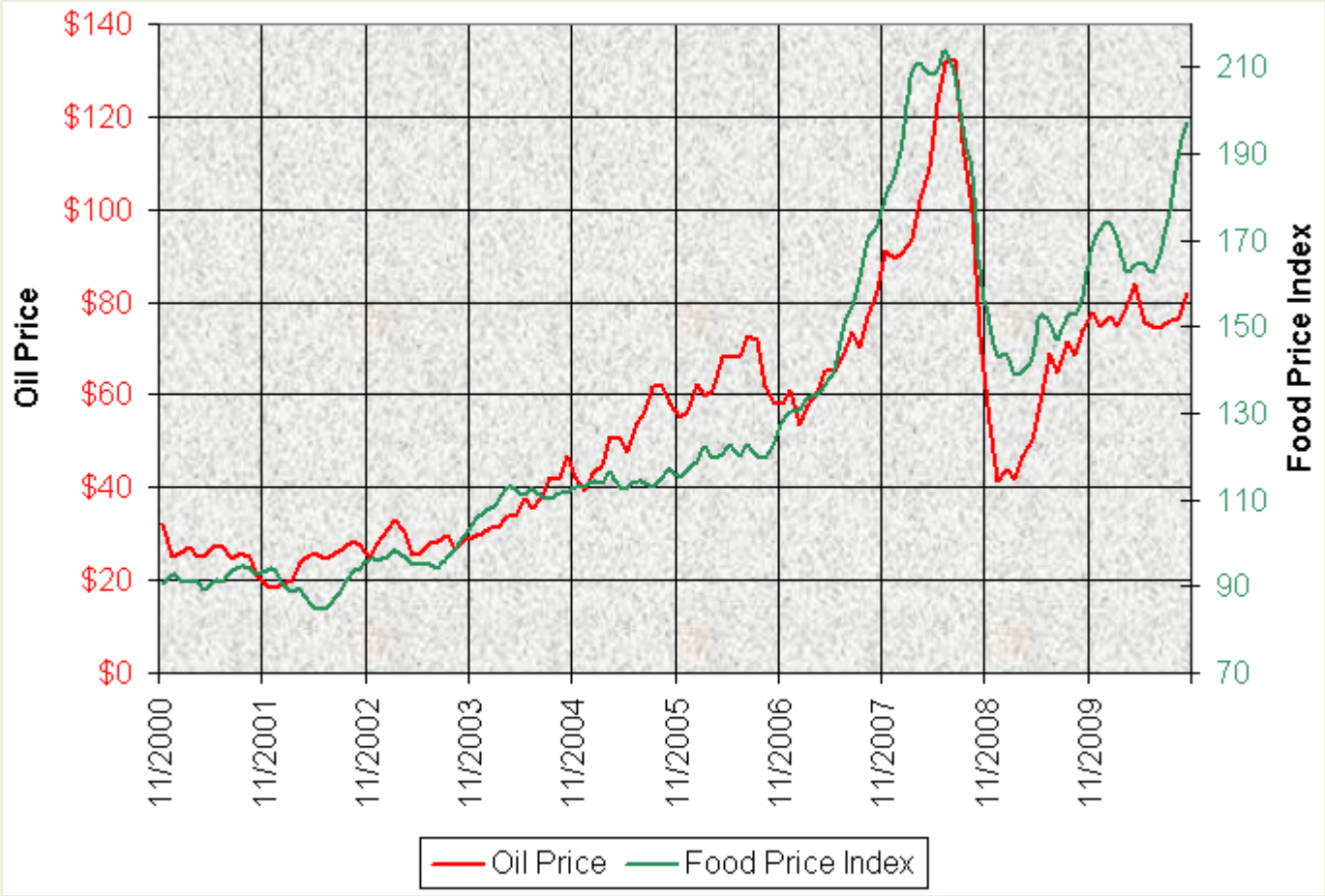
The demand for food/oil continues to rise, while our ability to produce and transport it in an affordable fashion is about to drop.

Our Energy Future

Energy descent from peak oil: collapse or evolution?



Food Prices vs. Oil Prices



Ten most recent years of world Food Price Index data from the UN Food and Agriculture Organization (FAO) and the monthly average oil price from the US Energy Information Agency (EIA).
The correlation is practically 1-to-1.

Mollison and Holmgren

Permaculture Ethics

Broad moral values or codes of behavior

CARE OF EARTH: **Provision for all life systems to continue and thrive**

LIFE ETHICS: **For people to have access to essential resources needed for their existence and lives.**

FAIR SHARE: **By paying attention to our real needs, we can set limits to population and consumption and when we have excess, we can share with others, including wildlife.**

Permaculture Principles

A set of universally applicable guidelines which can be used in designing sustainable habitats. Distilled from multiple disciplines, these principles are inherent in any permaculture design, in any climate, and at any scale.

1. Relative location
2. Each element performs multiple functions
3. Each function is supported by many elements
4. Energy efficient planning
5. Using biological resources
6. Energy cycling
7. Small-scale intensive systems
8. Natural plant succession and stacking
9. Polyculture and diversity of species
10. Increasing "edge" within a system
11. Observe and replicate natural patterns
12. Pay attention to scale
13. Attitude

Using PC Ethics & Principles

Implementing the earthcare ethics in our lives:

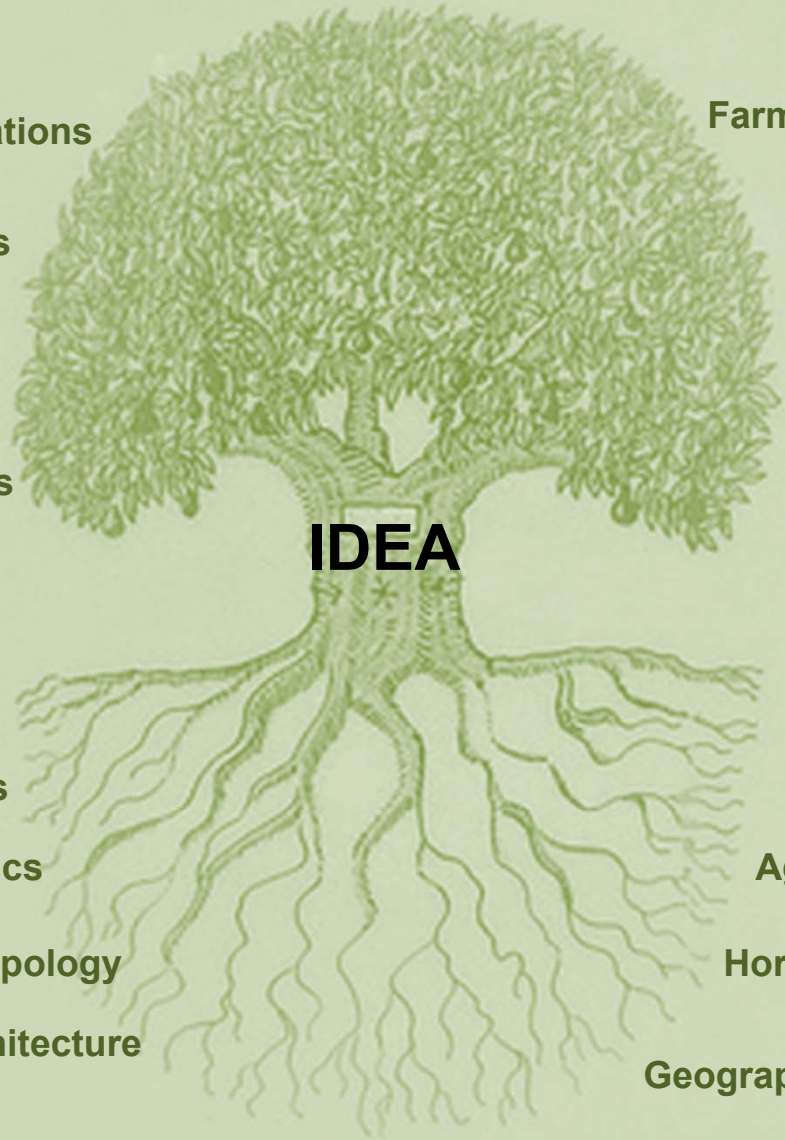
- Consider long-term consequences of your actions; plan for sustainability.
- Use native species or naturalized species known to be beneficial.
- Cultivate small-scale, energy efficient, intensive systems.
- Plan diverse and polycultural systems that provide stability and readiness for future social or environmental changes.
- Use everything at its optimum level; recycle all wastes.
- Work where it counts; assist those willing to learn.

Implementing the earthcare ethics in our lives:

- Increase the total yield by considering the sum of system yields provided by annuals, perennials, crops, trees, animals, as well as energy saved.
- Use low-energy environmental and biological systems to conserve and generate energy.
- Bring food-growing back into towns and cities.
- Assist people to become self-reliant; promote community responsibility.
- Reforest the earth and restore soil fertility.
- See solutions, not problems.

Permaculture Tree

The idea of whole system design



LIGHT

AIR

PRODUCTS

Corporations

Business

Suburbs

Villages

Farms

Gardens

Plantations

Aquaculture

IDEA

SOURCES

Energy

Finances

Economics

Anthropology

Architecture

Botany

Biology

Agriculture

Horticulture

Geography

EARTH

WATER

The Principles in Practice

work creates work
small is beautiful
everything gardens
everything is a resource
do only what is necessary
nature thrives in diversity
when in doubt, do nothing
everything works both ways
pollution is an unused resource
work with nature, not against it
the problem is often the solution
observe carefully before designing
functions stack in hierarchical order
include repeat functions in design
make the least change for the greatest effect
increasing edges increases interaction & energy
everything gives to the surrounding environment
the whole is worth more that the sum of its parts
everything receives from the surrounding environment
every element in a natural system performs many functions
the yields of a naturally balanced system are theoretically unlimited

Permaculture is Design

Conventional education pulls everything apart and looks at each element in isolation.

Permaculture makes connections. It is a land use and community planning philosophy that is based on how things are connected.

The focus is not on the elements themselves, but rather on the relationships created among them by the way we place them in the landscape. This synergy is further enhanced by mimicking patterns found in nature.

Permaculture

Elements of a Total Permaculture Design

Site Components

Earth
Water
Landscape
Climate
Plants

Energy Components

Technologies
Connections
Structures
Sources

Social Components

Legal Aids
People
Culture
Trade
Finance

Abstract Components

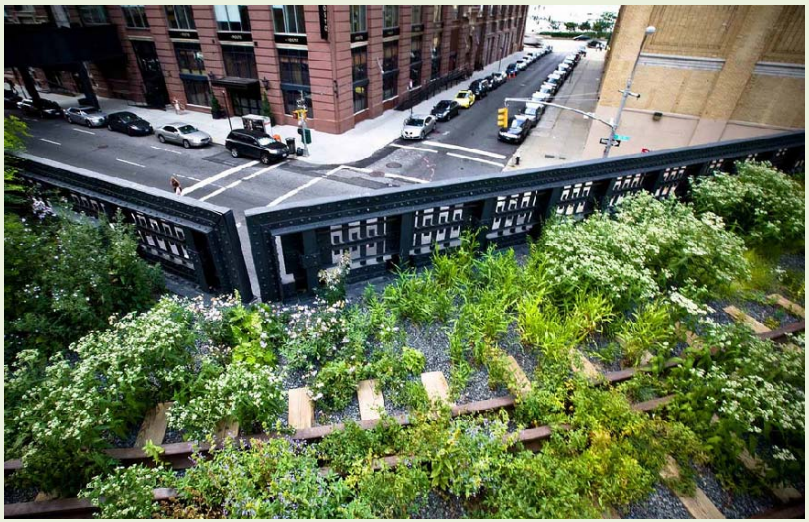
Timing
Data
Ethics

Permaculture: Today

“Consciously designed landscapes which mimic the patterns and relationships found in nature, while yielding an abundance of food, fiber and energy for local needs”

VERTICAL GARDEN BY PATRICK BLANC, PARIS

TREMONT COMMUNITY GARDEN, BRONX, NY



THE HIGH LINE, NYC

Catch, Store, Reuse

Cycling energy through plants, animals, structures

Catching a wild bee swarm and the energy stored in honey

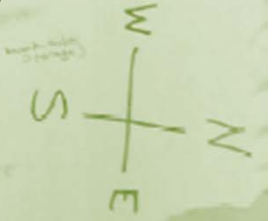
Many examples of wind and sunlight energy being cycled

Swales catch rainwater and store it back into the soil.

Permaculture Techniques

Observe and apply patterns found in nature

- *Creative use of water*
- *Ponds in strategic areas*
- *Increase edge patterns*
- *Add mounds, berms, spirals, depressions, swales*
- *Windbreaks to protect plants*
- *Recycle waste from home*
- *Develop aquaculture*
- *Integrate mammals and poultry into the systems*
- *Produce animal forages*
- *Technological strategies to support design*
- *Poultry as source of food, pest control, soil building*



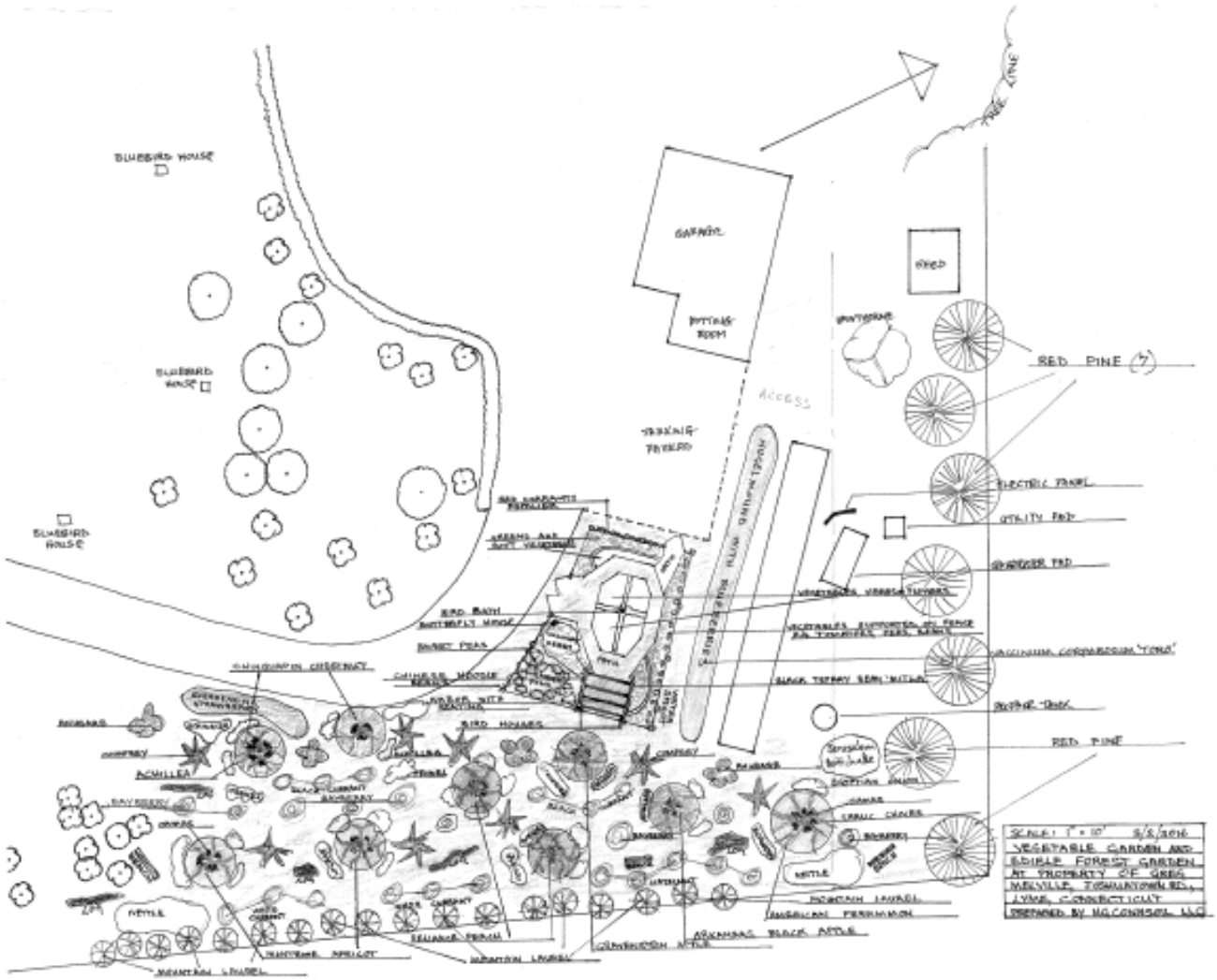
Site Assessment

Vital resources and considerations

- Water resources
- Regional climate (regional)
- Microclimate (local or site scale)
- Sun exposure
- Landforms
- Watershed characteristics
- Native plants
- Slope
- Off-site considerations

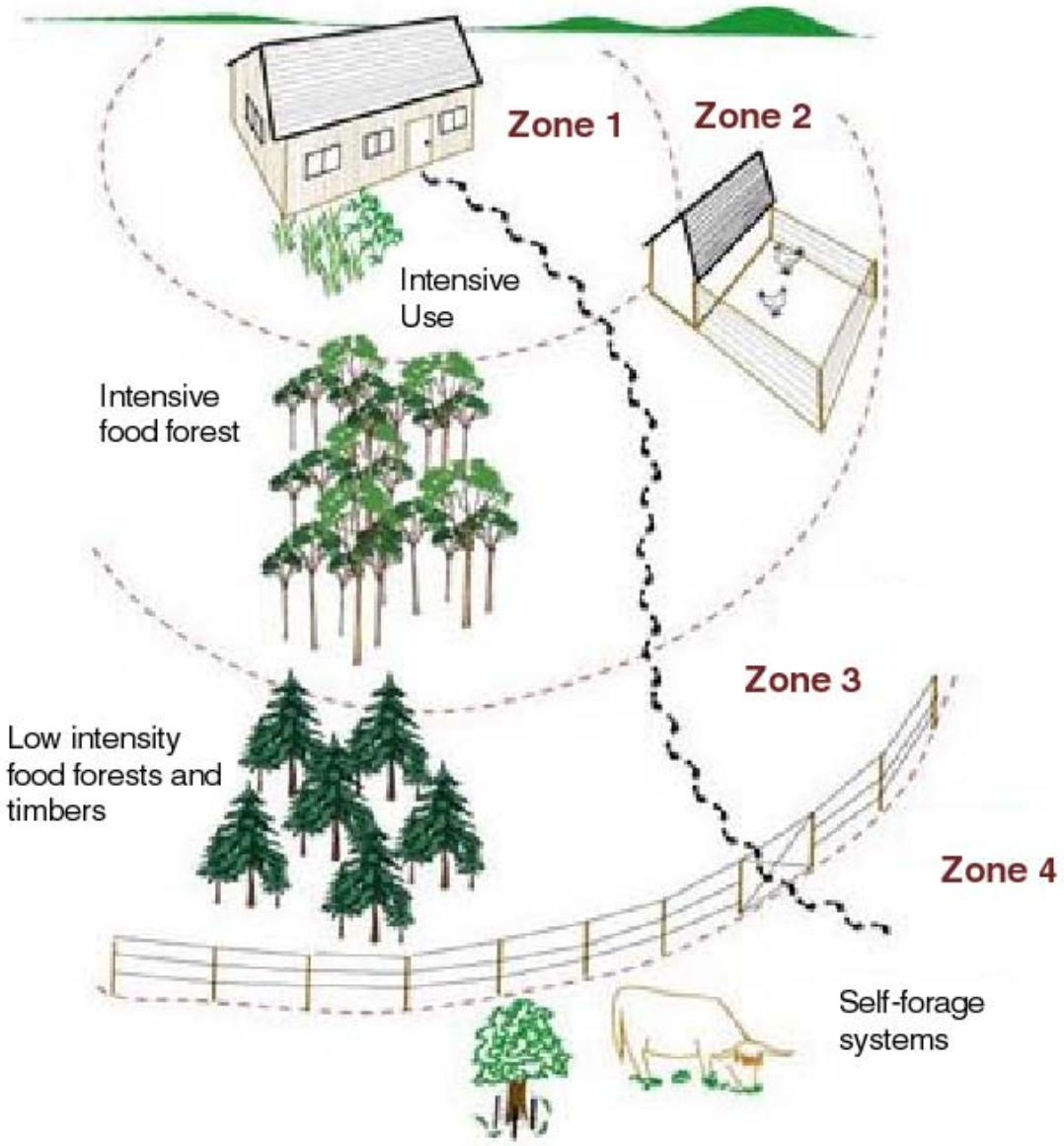
Site Planning

A gradual building up of systems


BLUEBIRD HOUSE
BLUEBIRD HOUSE
BLUEBIRD HOUSE
GARAGE
DINING ROOM
SHED
ACCESS
TREE LINE
RED PINE (7)
ELECTRIC PANEL
UTILITY POLE
RED PINE
RED PINE
SCALE: 1" = 10'
6/6/2016
VEGETABLE GARDEN AND EDIBLE FOREST GARDEN
AT PROPERTY OF GREG
MELVILLE, 7 SHANTYTOWN RD.,
LYME, CONNECTICUT
PREPARED BY MCCONNSOIL, LLC

Permaculture Techniques

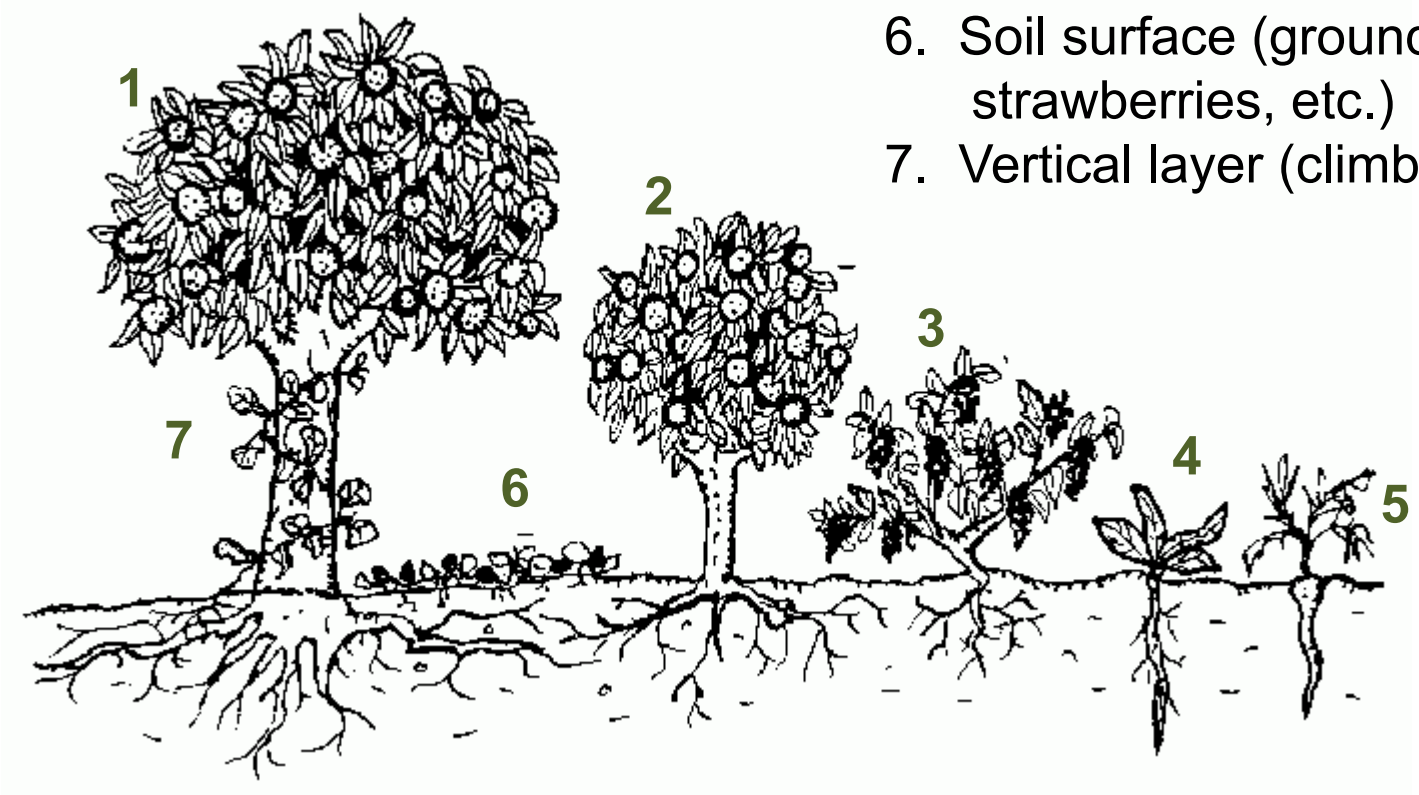
- *Small scale intensive systems*
- *Build soil fertility*
- *Use what is there already*
- *Use perennial plants where possible*
- *Increase plant diversity*



Permaculture Techniques Example

- *Plant stacking or "forest gardening"*
- *Develop plant "guilds"*

1. Canopy (large fruit & nut trees)
2. Low tree layer (dwarf fruit trees)
3. Shrub layer (currants & berries)
4. Herbaceous (comfreys, beets, herbs)
5. Rhizosphere (root vegetables)
6. Soil surface (ground cover, e.g., strawberries, etc.)
7. Vertical layer (climbers & vines)



The Forest Garden, (a 7-layer guild)

Umass PC Garden

PRESENTER

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http://www.connsoil.com

ACKNOWLEDGEMENTS

Holmgren, D. *Permaculture: Principles & Pathways Beyond Sustainability*. Hepburn, Victoria, Holmgren Design Services, 2002.

Mollison, Bill. *Introduction to Permaculture.* Tasmania, Australia: Tagari Publications, 1997.

CREDITS

Visuals adapted for this presentation are attributed to their authors' original usage:

SLIDE 7: PC Tree from B. Mollison (Intro to PC).

SLIDE 11: Adapted from D. Holmgren (P:PPBS).

SLIDE 15: Adapted from D. Holmgren (www.futuresecenarios.org)

SLIDE 16: Food Price vs. Oil Price graph by Paul Chefurka (www.paulchefurka.ca)

SLIDE 19: Quirindi Public School PC Plan by Nick Ritar (www.milkwood.net/)

SLIDE 21: Adapted from diagram by Graham Burnett (http://en.wikipedia.org/wiki/Forest_gardening

SLIDE 23: Adapted from B. Mollison (Intro to PC).

SLIDE 24: Diagram/photo by Graham Burnett (http://permaculture.wikia.com/wiki/Coppicing

SLIDE 25: PC Plan, by B. Mollison (Intro to PC).

PRESENTATION DESIGN

Marianne Greco
April 2011