



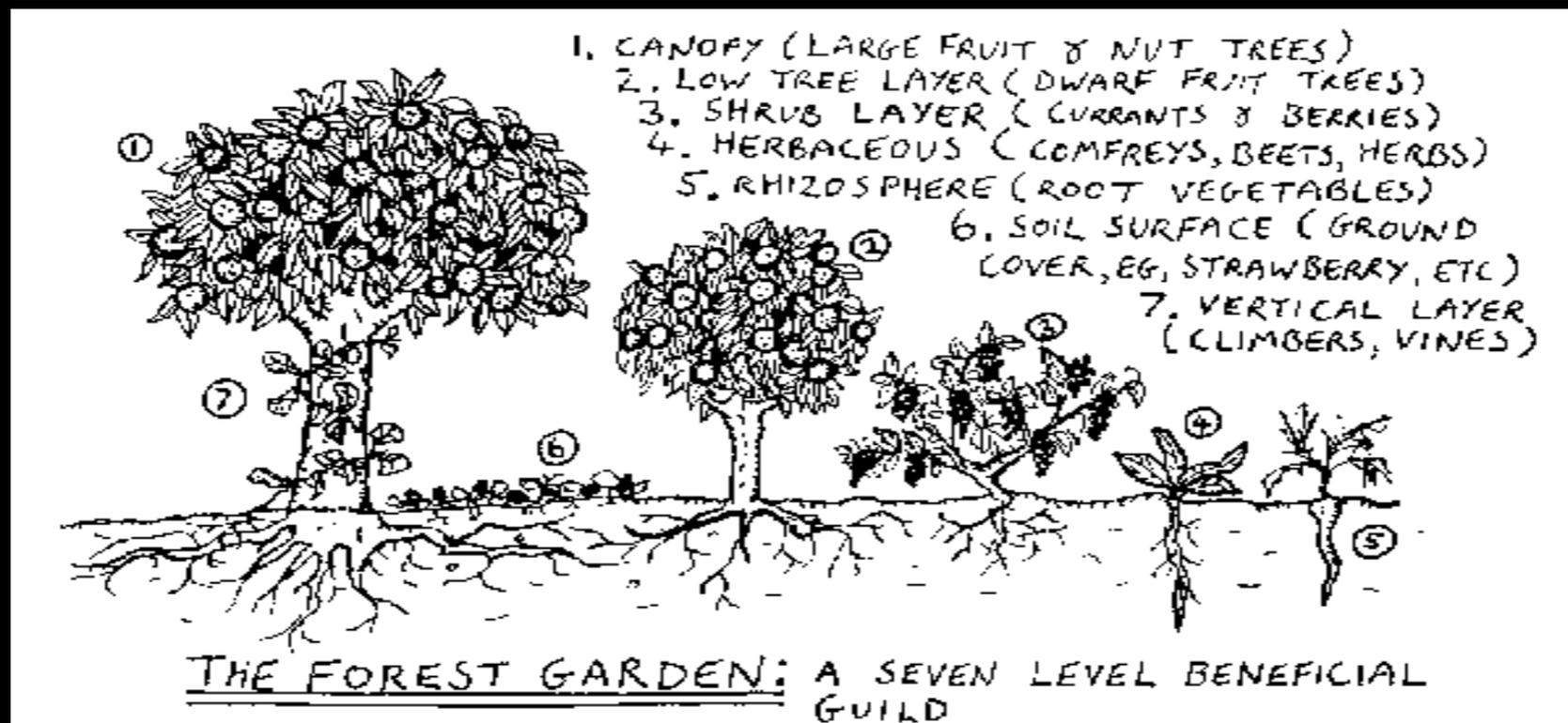
Food Forests: *A Fun Way to Enhance Habitat and Yield*

Presentation for Insights into Gardening
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What is a Food Forest?

~ A food forest is an intentional forest, designed based on the observation of ecology in a native forest.

~ In a food forest, native plants may be substituted for cultivated plants to meet local needs. Plant guilds are developed to enhance relationship.



drawing by Graham Burnett

~ We are not going into an already existing forest to replace native plants with cultivated plants. A food forest is a strategy for planting more trees and vegetation to enhance ecosystem functions and yield.

**How do we meet our needs
without depleting our resource
base?**





It is time for an ecological imperative.

“We have a responsibility to protect the rights of generations, of all species that cannot speak for themselves today. The global challenge of climate change requires that we ask no less of our leaders, or ourselves.”

*~ Wangari Maathai
founder of the
Green Belt Movement
rewarded the Nobel Peace Prize*

Indigenous cultures around the world express their sense of place through intimate bioregional design strategies.



Permaculture design is a modern term that asks us to come home to inhabit our place and design our lives based in the context of our place.

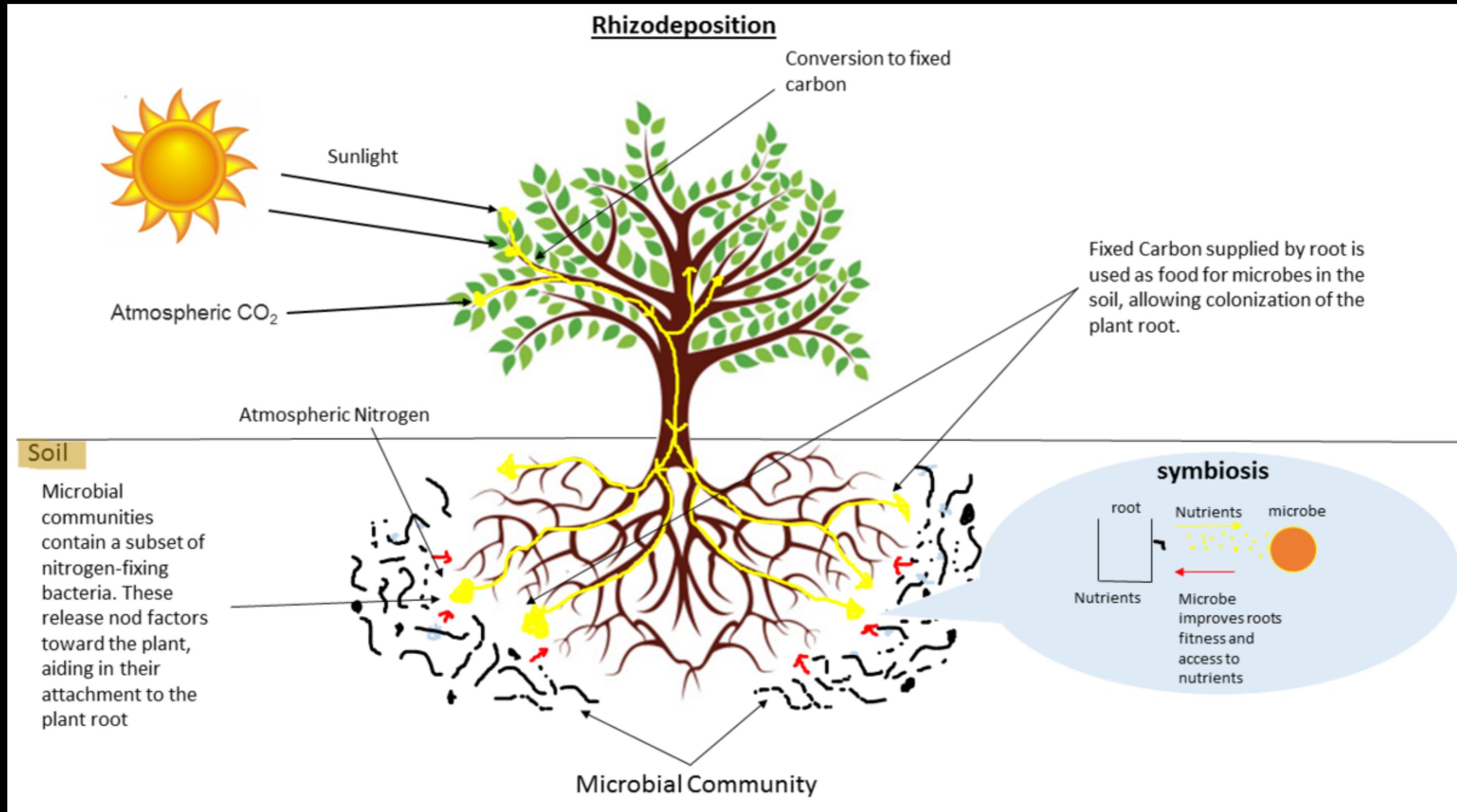
Many climate experts – from officials at the United Nations Food and Agriculture Organization to sustainable environmentalist and 2004 Nobel Peace Prize Winner *Wangari Maathai* – agree that *allowing* farmland to revert to its natural grassy or wooded states is the easiest and *most direct way to slow climate change*.



**Carbon Sequestration
while providing food!**



How carbon sequestration works:



Soil that has 2% living organic matter in the top foot can reduce the rainfall or irrigation needed by poor soils by as much as 75%.



P.S. It also provides habitat for soil microbes!

Design your landscape to mimic nature....



Establishing Pioneers
Early Succession

Mixed Shrub Forest
Mid Succession

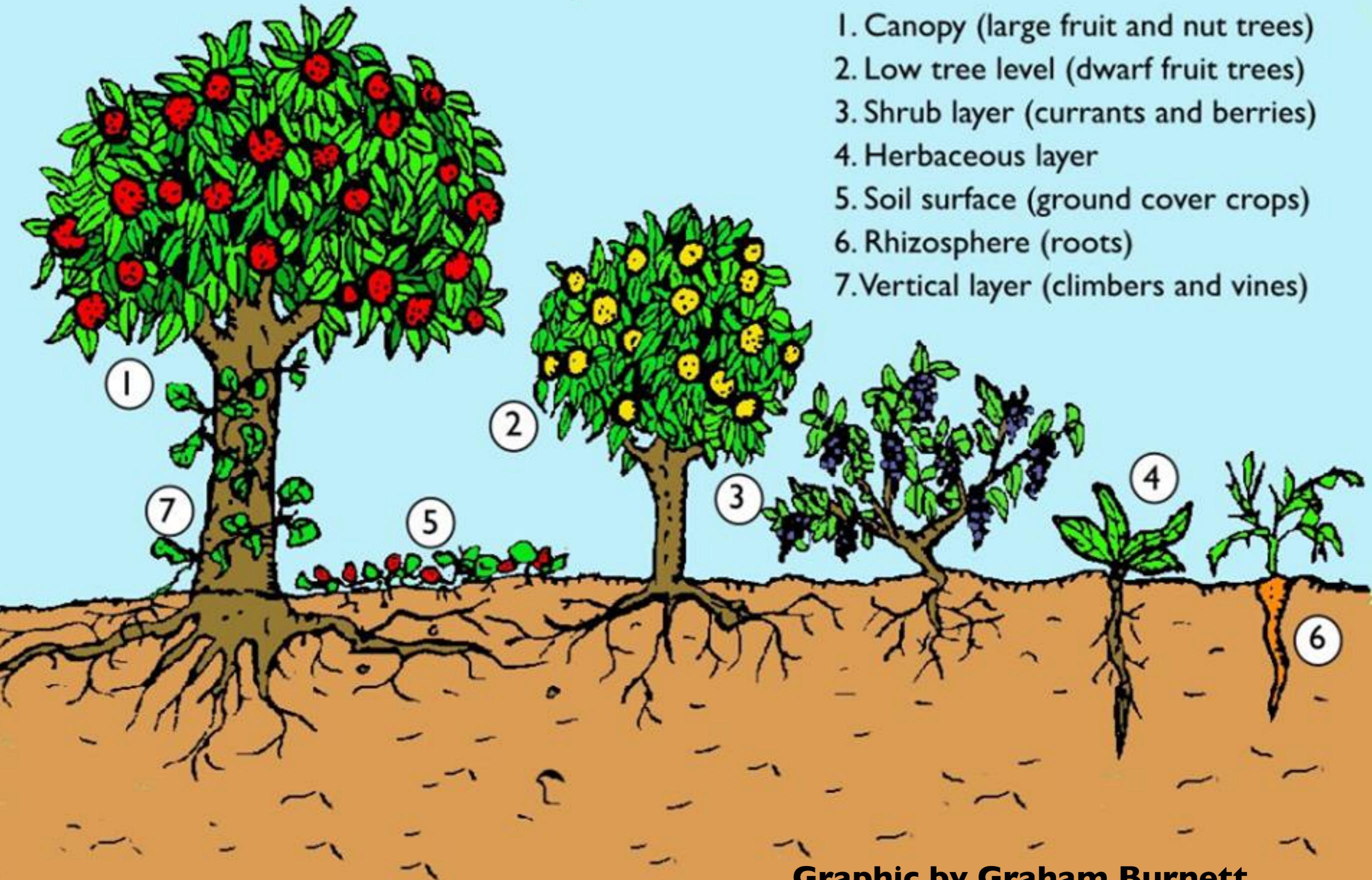
Mature Forest
Late Succession

We can provide for our needs while enhancing ecological functions in our home.



The Seven Layers Of The Forest Garden

1. Canopy (large fruit and nut trees)
2. Low tree level (dwarf fruit trees)
3. Shrub layer (currants and berries)
4. Herbaceous layer
5. Soil surface (ground cover crops)
6. Rhizosphere (roots)
7. Vertical layer (climbers and vines)





Trees

Overstory > 40'
Understory 12' - 40'
usually with a single trunk

- ~ Dominate Photosynthesis
- ~ Use the most nutrients & water
- ~ Determines how rain falls on the landscape
- ~ Regulates biomass accumulation, impacting the soil environment (nutrients, pH, etc)
- ~ Impacts the amount of sun that passes through the canopy
- ~ Provide habitat

Bonus for us: Trees produce exponential yields!

Fruit Trees!



Mulberry
Cherries
Plums
Peach
Apples
Asian Pears
Pears
Quince
Persimmon
Medlar





'Boskoop, Red' (3n)
 Use: culinary/dessert/cider
 Flesh/Flavor: firm/aromatic-tart-sweet
 Origin: Netherlands
 Parentage: 'Belle de Boskoop' sport, redder
 Disease resistance: fireblight
 Bloom period: C/sterile/pollination required
 Growth habit: vigorous/partial-spur
 Harvest: early-September
 Storage: October - December

'Bonnie's Best'
 Use: culinary/dessert
 Flesh/Flavor: firm/acidic
 Origin: 1980s, Coburn, Wisconsin
 Parentage: 'Wolff' x 'Decor'
 Disease resistance: scab/mildew
 Bloom period: C/cross-pollination req.
 Growth habit: upright
 Harvest: early-October
 Storage: October - December

'Black Twig'
 Use: dessert/culinary/cider
 Flesh/Flavor: hard-crisp/aromatic-tart
 Origin: introduced, c1820, near Fayetteville, TN
 Parentage: unknown seedling
 Disease resistance: scab/mildew
 Bloom period: C/cross-pollination required
 Growth habit: B/cross-pollination required
 Harvest: October
 Storage: October - January



'Blushing Golden'
 Use: dessert/culinary
 Flesh/Flavor: firm-juicy/sweet-tart
 Origin: 1950s, near Coburn, Illinois, USA
 Parentage: unknown seedling
 Disease resistance: scab/mildew
 Bloom period: C/cross-pollination required
 Growth habit: vigorous/spur
 Harvest: early- to mid-October
 Storage: long in all types



'Beurré Clairgeau'
 Use: culinary/dessert
 Flesh/Flavor: gritty-firm-melting/aromatic sweet
 Origin: 1828, Nantes, France
 Parentage: probable 'Duchess d'Angouleme' s.dl.
 Disease resistance: scab on fruit
 Bloom period: early/frost reist./cross-pollination re
 Growth habit: vigorous-upright/spur/tip
 Harvest: late-October - early-November
 Storage: November

Heirloom varieties aid with reliability and diversity

Heirloom



Shrubs

@ 6' - 12' tall
many stems, woody

- ~ Can grow in full sun or part shade
- ~ Provide Habitat
- ~ Offers ground dwelling animals opportunities for food and shelter
- ~ Most have evolved in a forest edge situation
- ~ Many spread by suckers or underground runners

Berries!

Strawberries
Honeyberries
Raspberries
Currants
Gooseberries
Jostaberries
Goumi
Blackberries
Elderberry
Huckleberry
Blueberries
Goji Berry
Ligonberries
Autumn Olive
Seaberry
Aronia



Herbaceous Plants

0.5' - 6' tall

often dormant in winter

- ~ Conserve & cycle nutrients
- ~ Support insect diversity
- ~ High productivity due to the large amounts of carbon dioxide near the surface of the soil
- ~ Some enhance receptivity of soil
- ~ Some attract beneficial insects & pollinators
- ~ Most diverse layer in a forest ecology

Stinging Nettles



Borage



“Dynamic Accumulator” Herbs

Muskmallow



Comfrey





Perennial Vegetables





Peas



Lupine

Nitrogen Fixers



Bladder Senna



Goumi

Plants for Attracting Beneficial Insects

**Cilantro -
Insectary,
Umbelliferae**

**Zinnia -
Insectary,
Compositae**



Vines

0.5' +

grows along the ground unless support is provided

- ~ Opportunistic
- ~ Can be parasitic and reduce the host's health and productivity
- ~ Provide habitat for wildlife
- ~ Maximize use of the sunlight and provide shelter from the sun for other plants

Rhizosphere Layer/Groundcover

covers the soil surface

- ~ Prevent erosion
- ~ Enhance water absorption in the soil
- ~ Prevent evaporation
- ~ Cool the soil temperature,
- ~ Provide shade the soil for microorganisms



Fungal relationships

- ~ Enhance the soil structure
- ~ Convert nutrients into available forms for plants
- ~ Aid in water retention
- ~ Exhale carbon dioxide
- ~ Repel saline water
- ~ Counteract disease rot fungi
- ~ Prevent frost damage on roots.

What Plants Provide:

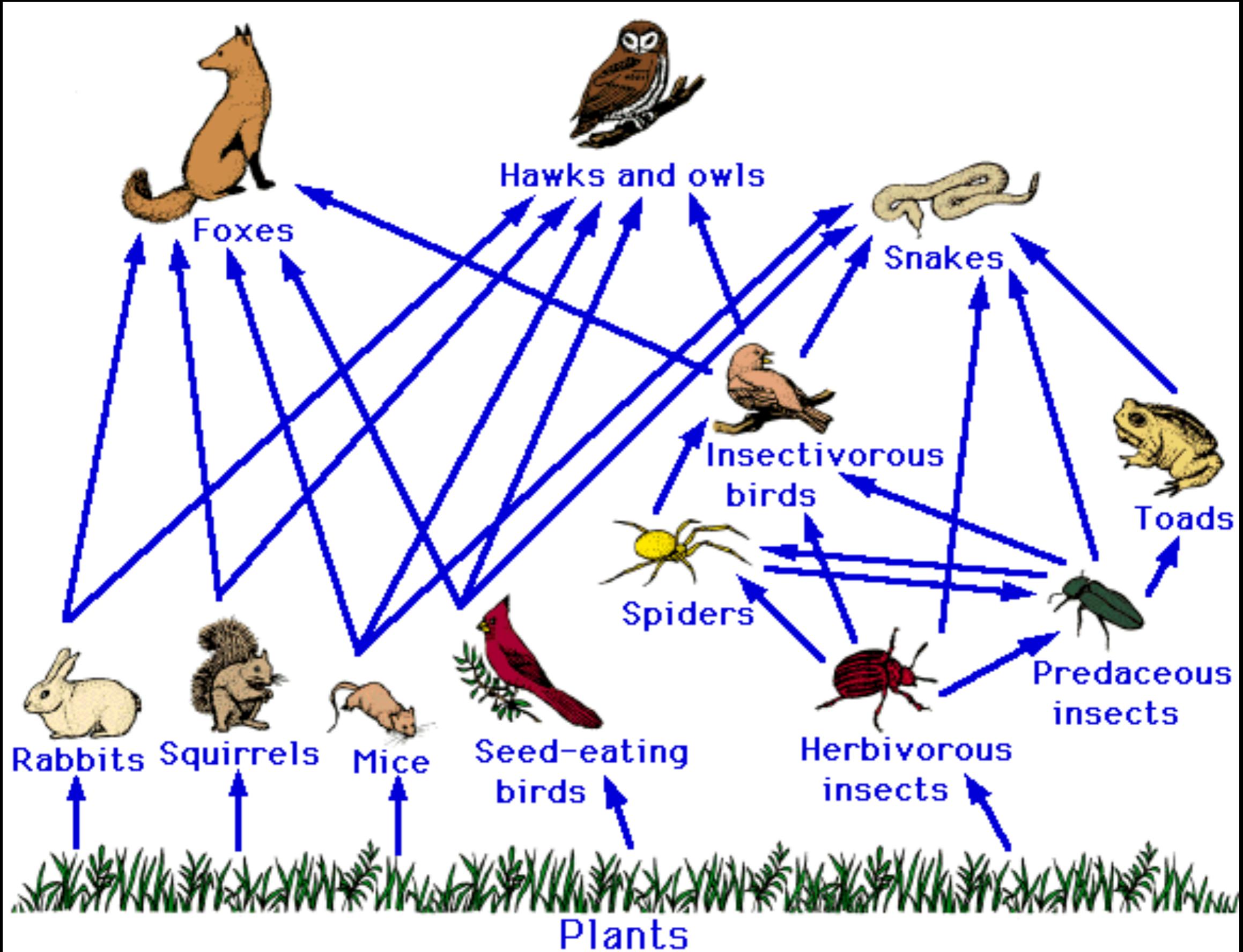
- ~ Stabilize Climate
- ~ Stabilize Soil
- ~ Enhance receptivity of soil
- ~ Nitrogen Fixation
- ~ Infiltrate Water
- ~ Cycle nutrients
- ~ Produce biomass/mulch
- ~ Disperse Seed
- ~ Weed Suppression
- ~ Habitat for Wildlife
- ~ Discourages pests
- ~ Provide shade
- ~ Decompose Waste
- ~ Regulate disease causing organisms
- ~ Pollination Services

Yields for Humans

- ~ Food
- ~ Medicine
- ~ Cut Flowers
- ~ Fiber
- ~ Fuel
- ~ Building Materials
- ~ Fragrance
- ~ Ornamentation
- ~ Fodder for Animals

Drawing by Andrew Millison

Consider local food webs to aid system resilience



**Analog Species
provide design clues**

Sweet Woodruff
(Galium odoratum)
Cultivated

Cleavers
(Galium aparine)
Native



Everything Gardens!

Animals for fertility and pest control



Creating Spaces for Community



1 IN 6 AMERICANS STRUGGLES WITH HUNGER.

VISIT FEEDINGAMERICA.ORG

TOGETHER
WE'RE

FEEDING
AMERICA



Food Share, Inc. of Ventura County
Los Angeles Regional Foodbank
Second Harvest Food Bank of Orange County
Second Harvest Food Bank Serving Riverside and San Bernardino Counties

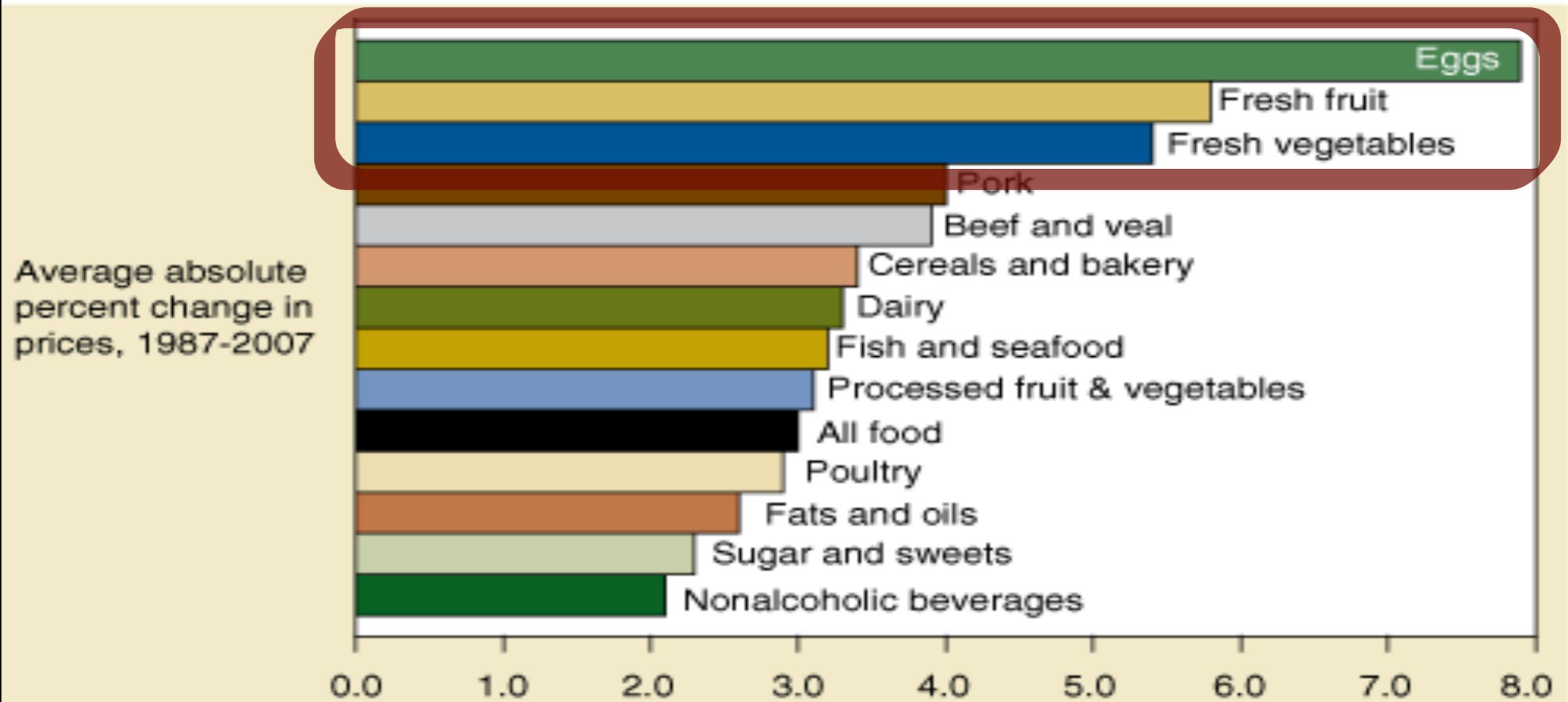
CLEARCHANNEL DIGITAL

- * 1 in 4 children do not have enough to eat.
- * Many individuals who struggle with hunger are working and not homeless.
- * More than 2 million rural households experience food insecurity.
- * Hunger is increasing at an alarming rate in America.

Source: Feeding America: <http://feedingamerica.org/hunger-in-america.aspx>

Local production leads to resilient communities

Eggs, fruit, and vegetables have the most volatile prices



Source: ERS calculations using Bureau of Labor Statistics' Consumer Price Index data.

Design From Patterns to Details

Home Scale Food Forest



Home Scale Food Forests can be as diverse as you can manage since it is growing in your own landscape/backyard.



Fruit Throughout the Year

- May:** Strawberries, Honeyberries
- June:** Strawberries, Honeyberries, Raspberries, Mulberries, Goumi
- July:** Raspberries, Currants, Gooseberries, Blueberries, Goji Berries, Cherries, Pears, Japanese Plums, Blackberries, Mulberries, Jostaberries
- August:** Raspberries, Blueberries, Autumn Olives, Apples, Pears, Asian Pears, Plums, Marionberries, Loganberries, Elderberries, Goji Berries, Grapes, Aronia, Fig
- September:** Raspberries, Apples, Pears, Asian Pears, Paw Paw
- October:** Apples, Pears, Quince, Grapes
- November:** Apples, Pears, Quince, Persimmon

Belmac Apple

Hudson's Golden Gem Apple

Suij Pear

King Apple

Bella di Guirno Pear

4 in 1 Pear

Methley Plum

Water Catchment

Chicken Pond

Production Food Forest



Production Food Forests need to be designed for efficiency. Ease of management is helpful when working with various people on the land in this larger scale.





SE Market Street

SE 12th Avenue



Food Forests in Schools





Educational programming is a top priority for Food Forests in schools. At Manzo Elementary School in Tucson, AZ, the students learn about heirloom fruit trees & propagation with their participation in the landscape.

Community Food Forest



Photo Credit: Jonathan Lee, subtledream.com

Photo Credit: Jonathan Lee, subtledream.com





Community Food Forests offer opportunities for learning new skills and working with diverse groups in your neighborhood.

This type of food forest is often reliant fundraisers and donations.



At a Community Food Forest, signage helps clarify tasks and programming for participation.



Wide paths, adequate trellising, and diverse surfaces make the place accessible to all.



Photo Credits: Jonathan Lee, subtledream.com and Beacon Hill Facebook Page



Consider the scales of gathering spaces to promote interaction between community members.

Shared meals build community connection and provide opportunities to connect which can enhance trust.



Photo by Alicia Elliot



Venue Food Forests
can provide a space
for community
celebration and
memory surrounded
by fresh food and
good stewardship.

Thank you!
marisha@fertileground.org,
www.permaculturerising.com

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PERMACULTURE FOOD FORESTS ONLINE COURSE

Permaculture Food Forests 101

FOOD FORESTS 101

Watch on YouTube

Permaculture food forests are intentionally cultivated forest gardens. They contain native and cultivated plants which provide yields for humans and ecological functions.

What are the Benefits of a Food Forest?

- Food Forests design focuses on plant communities that are edible, medicinal, and enhance the local environment
- A food forest design is low maintenance and can be applied in all bioregions.
- Food Forests are a sustainable way to produce nourishing, healthy, and organic food
- Improve yields result from the thoughtful design of a food forest.

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Practicum:
March 31 - June 15, 2025

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Self paced: \$195
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**Grow Your Own Produce:
The Workshop Series**

A monthly workshop series providing timely advice on how to grow nourishing food in your own yard.
Feb - Nov. 2026, Join us: Permaculturerising.org

For more on Food Forests, check out my YouTube Channel @MarishaAuerbach