



CLIFFORD PARK REIMAGINED!



**RESILIENT HARTFORD: COMMUNITY
MEETING**

**Ecological Design & Species
Considerations**

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Ecological Design & Species Considerations

- What is Permaculture?
- Design Process
- Goals Articulation
- Patterns to Details
- Species for maximizing soil health, biodiversity, habitat and community grown food.

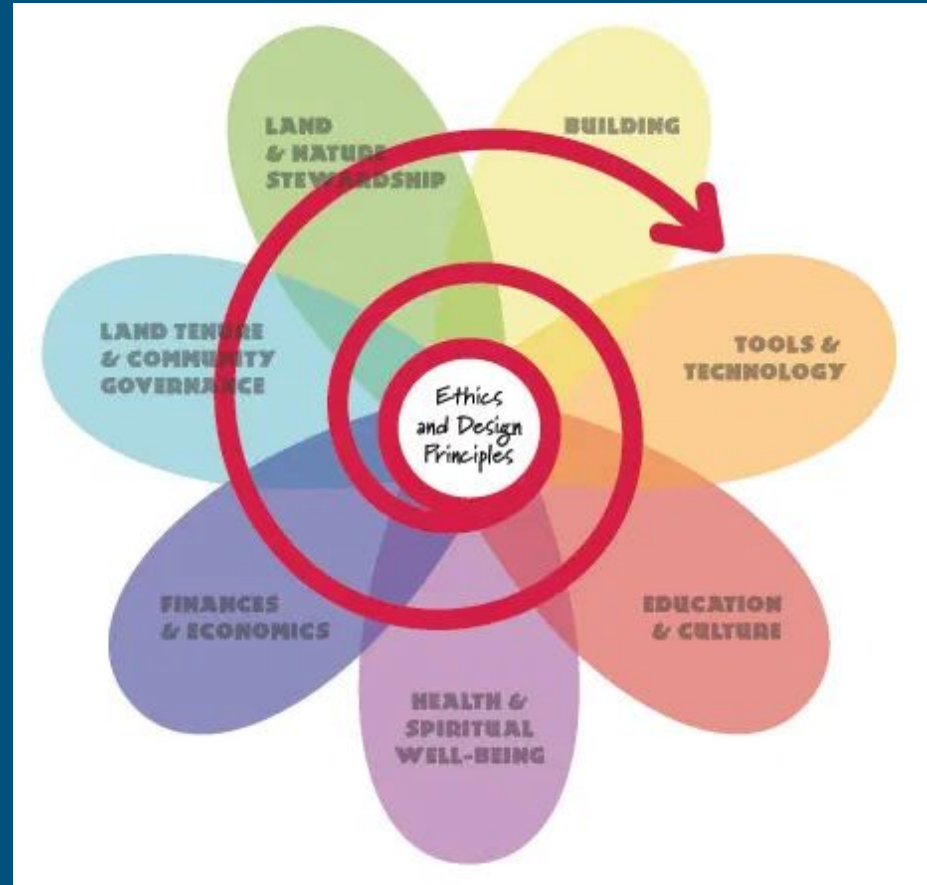


What is *Permaculture*?

A holistic design process that maximizes ecosystem functions and biodiversity.

Interconnected ~ Closed Loops Nutrient Cycling: Recognizing connections between all living things.

The harmonious integration of the landscape with people providing food, energy, shelter, and other material and non-material needs in a regenerative way.



- **Earth Care:**

All life is interconnected and interdependent. All life forms and species are intrinsically valuable

- **People Care:**

Taking care of ourselves and each other

- **Fair or Future Share:**

Abundance in nature distributed to most vulnerable populations



Why Permaculture?

- Increasing Biomass: storing carbon in plants and soil.
- Connecting with nature's cycles
- Re-localizing the food system
- Building Soil
- Developing interdependence = Community
- Nurturing Community Resilience
- Co-creating a healthy thriving world for everyone! .



DESIGN PROCESS



- Observe
- Map
- Sun, slope, water, soil, wind, species, structures, past, present, future.
- Pathways of circulation
- Patterns to Details
- Develop place based methodologies

DESIGN PROCESS

Analysis & Assessment

- Sun
- Slope
- Water
- Wind
- Soil
- Pathways of Circulation

What Currently Exists?

What are the Challenges and Opportunities?

ZONES & SECTORS

- 0 - Self
- 1 - Family / Community
- 2 - Home / Sanctuary
- 3 - Garden
/Sustenance
- 4 - Shared Ecosystems
- 5 - Wild / Intrinsic
- 9 – Unknown

- Observing what is:

How do we respond to
maximize beneficial
relationships within the
ecosystem for all parts
and the whole?

GOALS ARTICULATION

- Restore Soil
- Increase Biodiversity
- Grow Food for the Community
- Create multi use outdoor spaces for gathering and learning
- Grow perennial food crops for the community
- Create Community Composting
- Demonstration and Learning site for regenerative agriculture, agroforestry and perennial food forests



Patterns to Details: Macrocosm to Microcosm

Height: Canopy -
ground covers

Time: 10 years -
NOW!

Ecosystems

Functions: Max -
Min

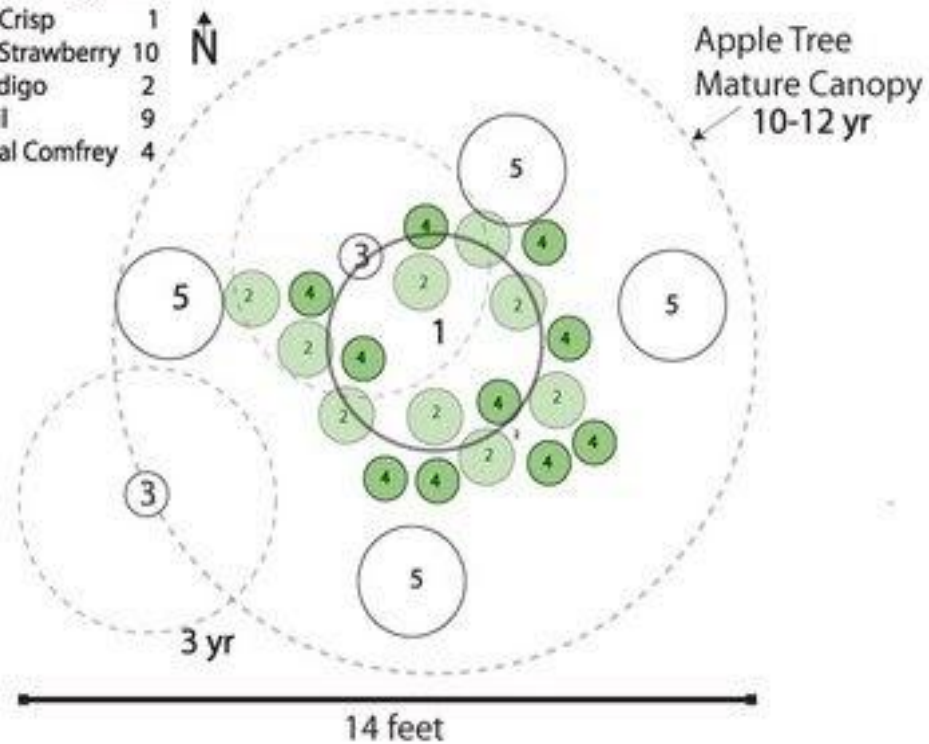


If You Guild it They Will Come



Orchard Polyculture

- | | | |
|---------------------|----|--------|
| 1 Honey Crisp | 1 | ↑
N |
| 2 Alpine Strawberry | 10 | |
| 3 Wild Indigo | 2 | |
| 4 Daffodil | 9 | |
| 5 Optional Comfrey | 4 | |

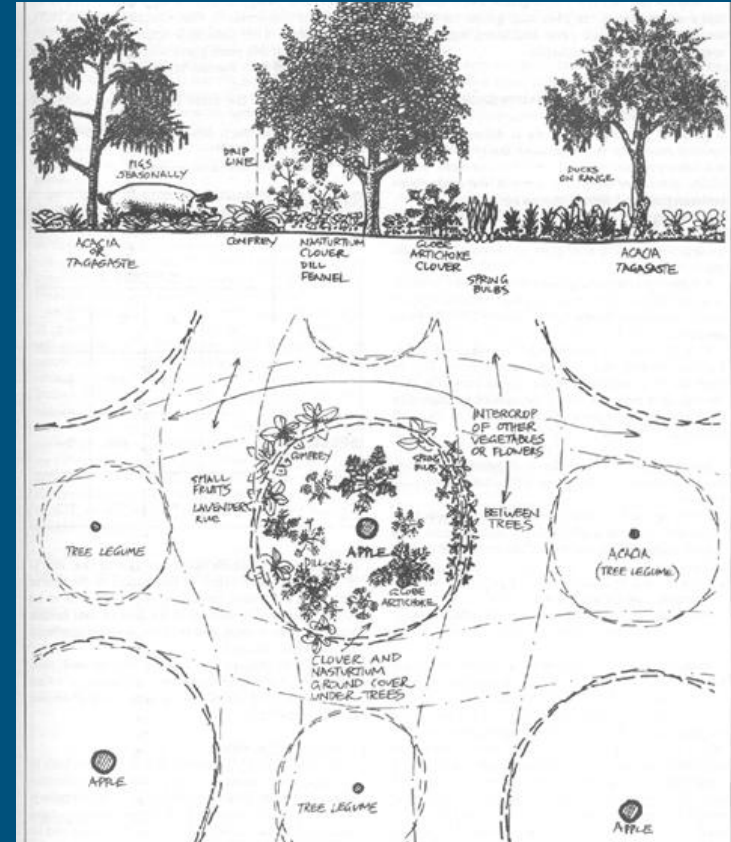


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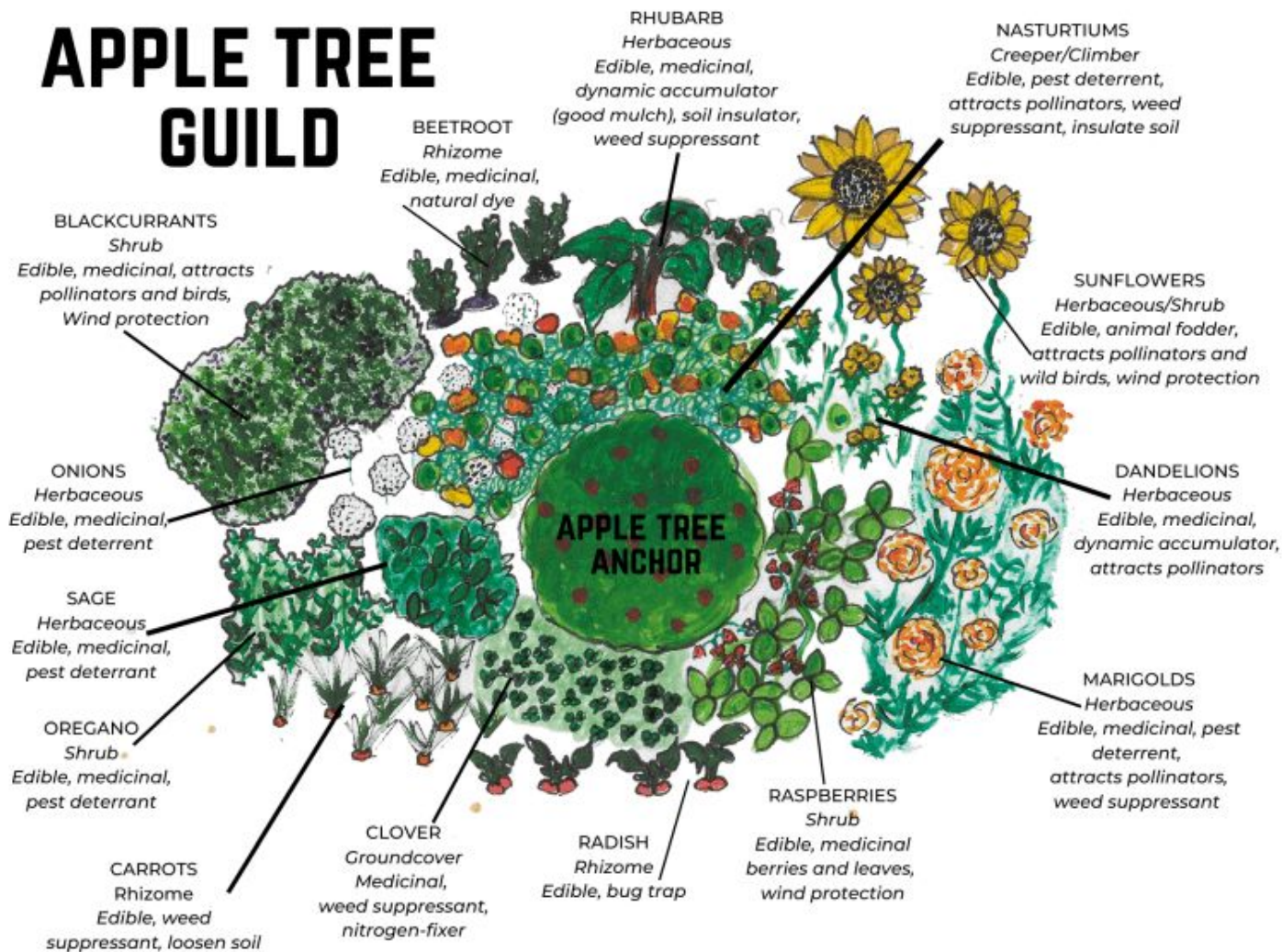


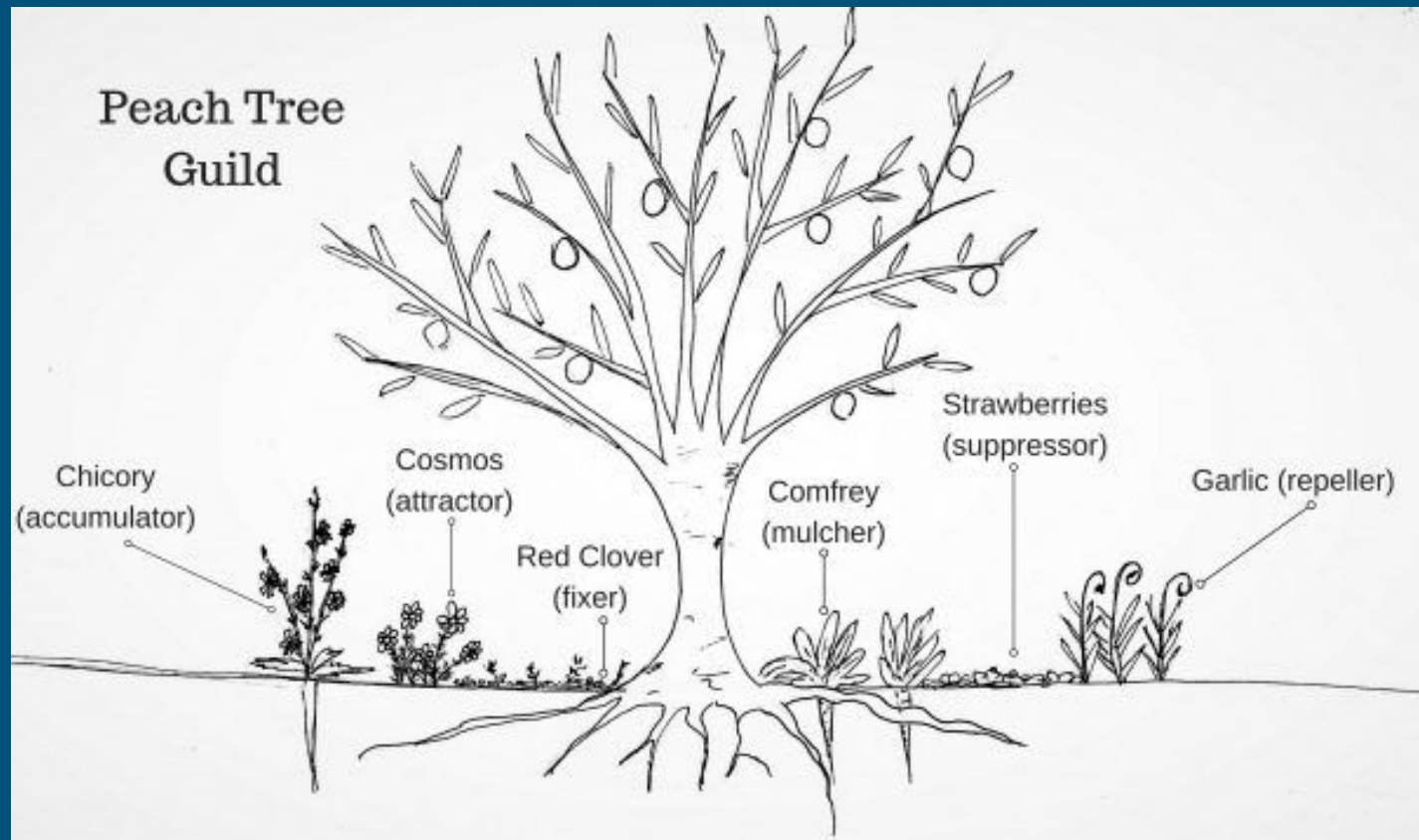
Ecosystems Functions

Soil Building
Nitrogen Fixing
Nutrient Accumulating
Pollinator Attracting
Habitat Providing
Water Cycling
Carbon Sequestering
Oxygen Producing
Climbers
Protectors

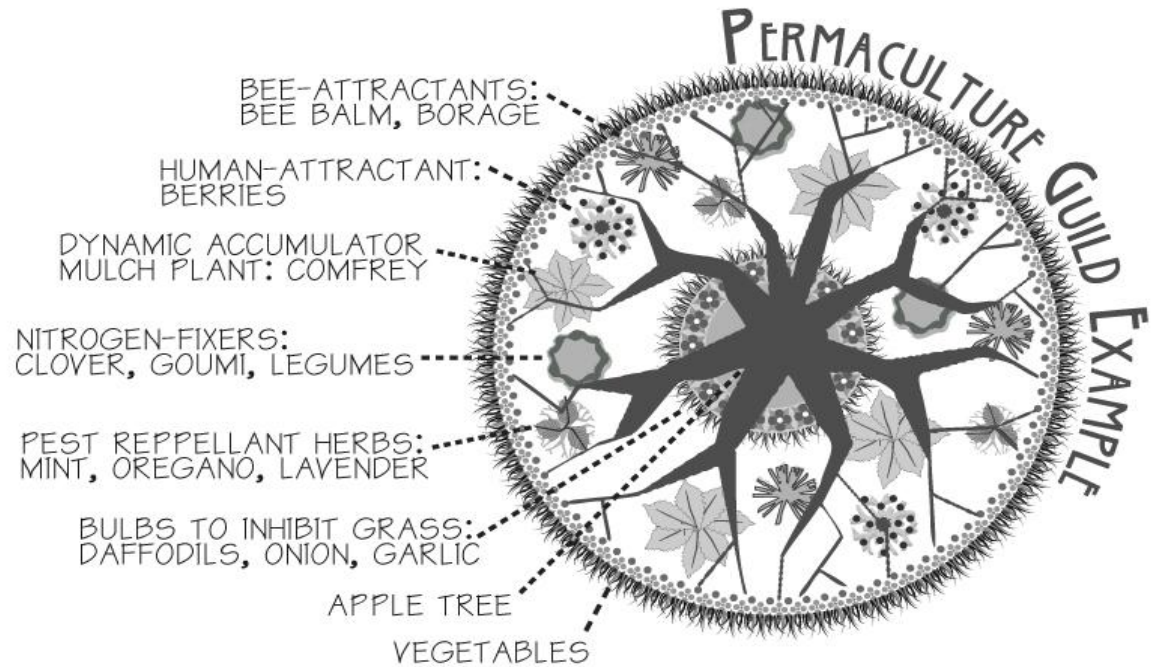


APPLE TREE GUILD





Informed Natural Design



A polyculture of strawberries and garlic yields more food per square foot together than it would if the plants were separated. The different leaves and root structures do not compete for sunlight or water.

Nutrient Accumulators

Borage
Comfrey
Dandelion
Docks
Lemon balm
Parsley
Valerian
Yarrow
Salad Burnet
Sorrel
Nettle
Mullein



About Comfrey

Varieties:

- Bocking 14 Russian: clumping - spreads through tilling or spreading of root or leaf.
- Variegated Gold Comfrey: soft and like a hosta. Not as vigorous as 14.

Multiple functions: insectary, nutrient accumulation, minerals, medicinal, biomass



Nitrogen Fixers: Mostly Fabaceae or Pea Family

Make atmospheric N_2 available to the plants by converting it to NH_3 - and NH_4 - Ammonia that the plants can take up in a symbiotic relationship with root bacteria.



Species:

Trees: Alder, Black Locust, Red Bud, Acacia

Shrubs: Autumn Oliver, American Bayberry (Myrica), Seaberry, New Jersey Tea, Siberian Pea Shrub

Perennials/Annuals: Baptisia, Lupine, Clover, Alfalfa, Groundnuts, Peanuts, Licorice, Fava beans

Ground Covers

Spreading/Runners

Ajuga
Creeping thyme
Wild strawberry
Sweet woodruff
Mints
Purslane

Clumping

Oregano
Catmint
Chives
Chamomile
Lemon balm
Self heal
French Sorrel



Shrubs:

- Aronia berry
- Clethra alnifolia
- Goumi
- Elderberry
- Saskatoon / June Berry
- Viburnum Trilobum

Perennials: insectaries & nutrient accumulators

Yarrow (*Achillea millefolium*): attracts lacewigs, ladybugs, hoverflies and more!
Send deep roots into compact soils.

Globe Thistles (*Echinops ritro*): Large clumping plants. Provide food for lots of insects!



Insectaries



Why Bugs?



- Pirate bugs, damsel bugs, big-eyed bugs, hoverflies, lady bugs all eat many small insects including: leaf hoppers, spider mites, insect mites, aphids as eggs and adults!



Plants to attract: Caraway, Fennel, White cosmos, Spearmint, Asclepias spp., Queen Anne's Lace, Hairy Vetch, Penstemon

Insectaries continued



Tachinid Flies:

Parasites of caterpillars (corn earworms, cabbage loopers, cutworms, stink bugs, squash bug nymphs, beetle and fly larvae and more.

- Buckwheat, Lemon balm, Pennyroyal, Parsley, Tansy, Crimson Thyme

Wasps: Trichogramma and Braconoid



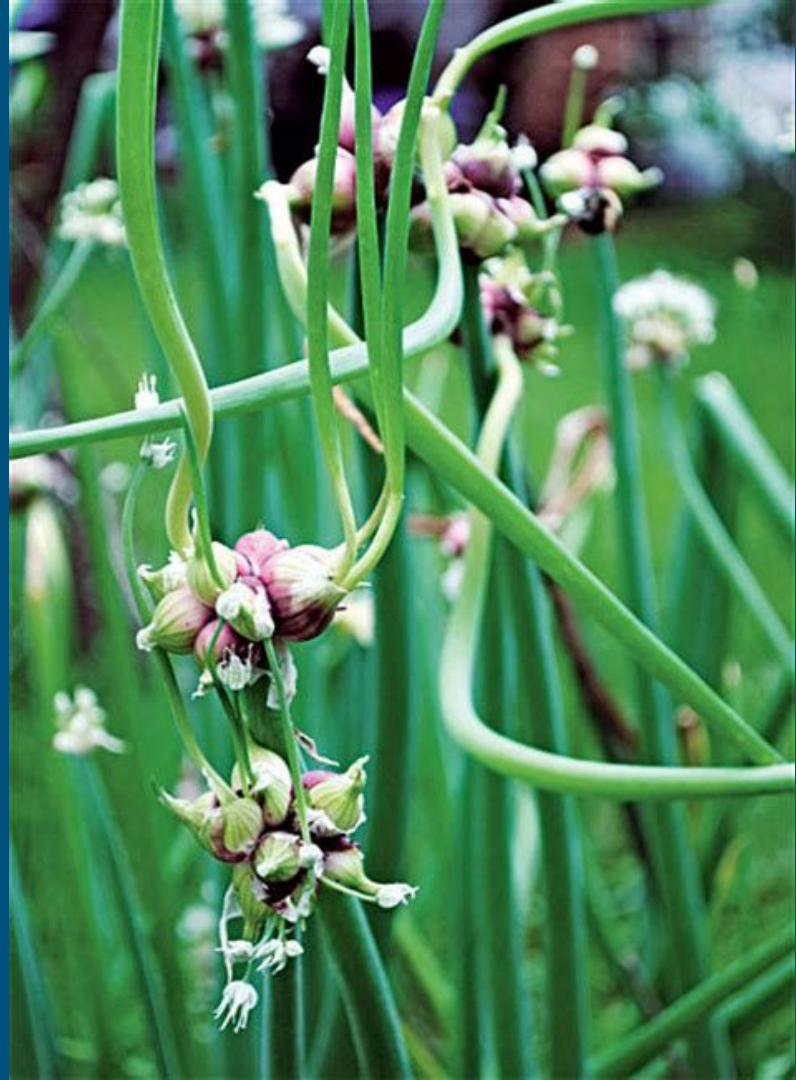
These wasp families lay eggs in eggs of moth eggs ie. future caterpillars.

Plants to attract:

Yarrow, Lavender, Dill, Masterwort,
Caraway, Coriander, Lemon Gem
Marigold, Crimson Thyme, Veronica,
Zinnias, Rudbeckia, Sedum, Wood
Betony

Pest cofusers

- Mint, Broadleaf Sage, Yarrow, Bee Balm, Chives, Walking Onions



Applied Design

Horseradish - repels diseases common to apples.
Shade tolerant

Comfrey - dynamic accumulator, insectary, medicinal,
soil building

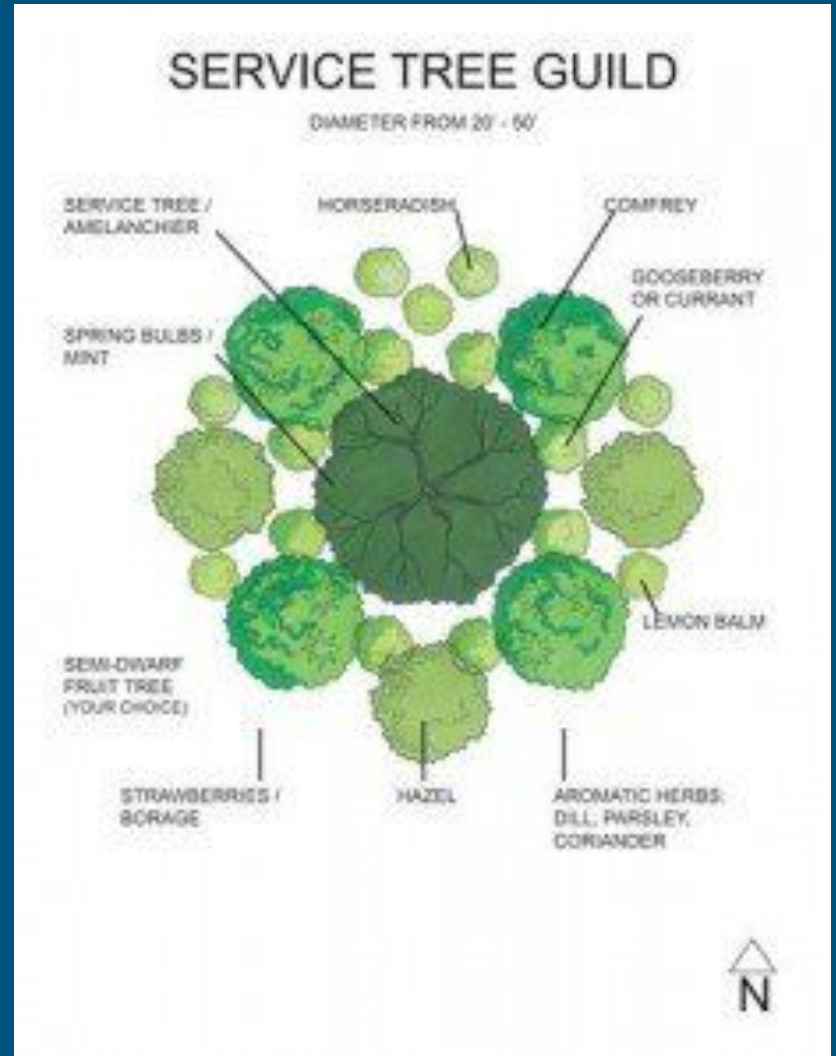
Gooseberry or Currant - shade tolerant, nutrient dense

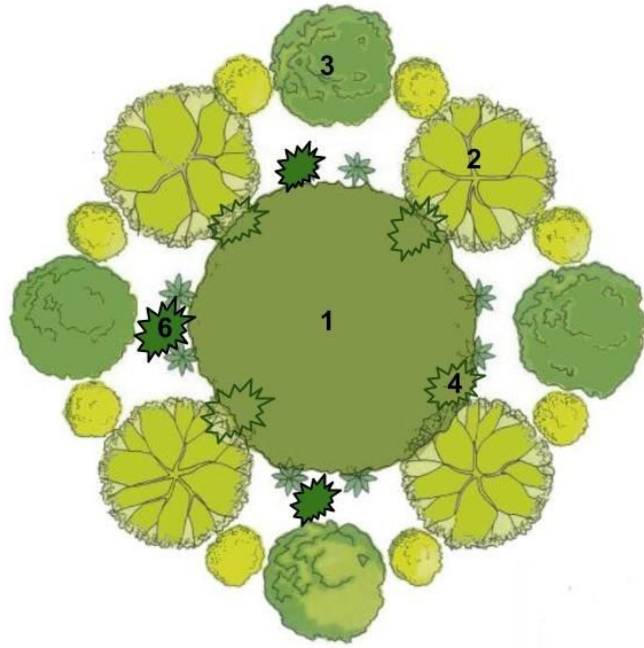
Herbs: Lemon Balm, Dill Parsley Coriander- insectary,
medicinal

Hazelnut - shade tolerant nut

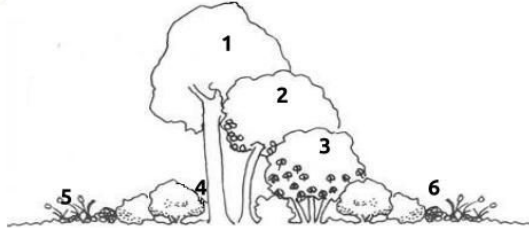
Strawberries - ground cover, fruits

Spring Bulbs - vole repellent, insectary





1. **Canopy**
 - 1.1. Oak
2. **Sub Canopy**
 - 2.1. Cherry
 - 2.2. Mulberry
3. **Shrub**
 - 3.1. Hazelnut
 - 3.2. Elderberry
 - 3.3. Gooseberry
4. **Herbaceous**
 - 4.1. Fennel
 - 4.2. Comfrey
 - 4.3. Basil
 - 4.4. Bee Balm
 - 4.5. Iris
5. **Ground Cover**
 - 5.1. Mint
 - 5.2. Strawberries
 - 5.3. Violets
6. **Underground**
 - 6.1. Horseradish
 - 6.2. Wild Ginger



Diversified Polyculture

REFLECTIONS ON RESILIENCE & COMMUNITY

- A Mature Culture is one with vision – Peter Bayne
- Reframe challenges into opportunities.
- Design with solutions in mind to meet multiple functions for thriving culture = healthy soil, fair and equitable social systems
- Learn from Nature , Slow Down, Follow the Soil Health Principles
- Cultivate a long view – Future Generations being able to share and live in peace.

Next Step

Build our team!

There are lots of ways to get involved

Ground Team

Do you have connections to resources like leaves, wood chips, compost, plants, or other organic matter?

Do you have an interest in building soil?

Action Team

Do you like physical work? In the short term we have soil to build, holes to dig, and seeds to plant! In the long term, we need a team of committed caretakers.

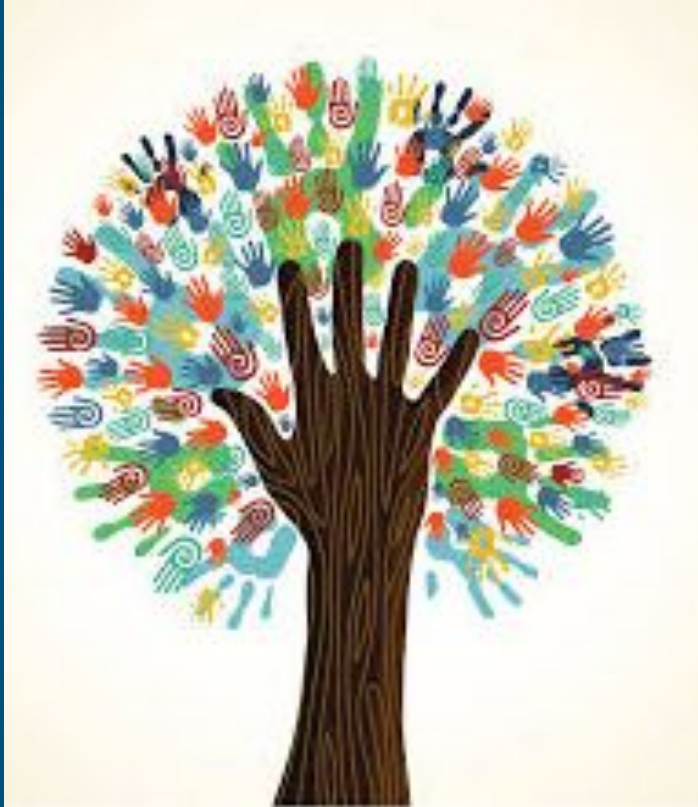
Design Team

Do you have ideas for species and design and want to be involved in that process?

Fundraising

Are you a writer?
Comfortable writing grants?
Do you like fundraising for community projects?

Stay Involved: What Possibilities do you see?



Resilient Hartford

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