

How Your Garden Can Help Save the Planet

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Resources and Presentation PDF





Workshop Overview

- About Dana
- Challenges and solutions
- Refugia – what they are and how they function
- Designing refugia for Ecosystems in Pennsylvania
 - Targeting species to support
 - Three models for different ecosystems
- Soil building techniques
- Spreading hope and seeds

Challenges

Humans are taking up too much space and putting too much pressure on shrinking ecosystems.

Krause, *Great Animal Orchestra*; Insect Studies = less ecological diversity, ecosystems on brink of collapse





It is important that we protect the diversity of our flora and fauna here in Pennsylvania for future generations.

Yes! Your Garden Can Help
Save the Planet!



Supporting Species in Pennsylvania

- Pennsylvania has 763 species on our rare, endangered, or threatened list (Of those: 582 “rare” plants and trees are listed as rare, endangered, threatened, or expatriated in Pennsylvania
 - There are 29 rare, endangered, or threatened species of mammals and birds in Pennsylvania



Refugia

- Refugia (pl); Refugium (singular) is a concept discussed by E. C Pielou in *After the Ice Age: The Return of Life to Glaciated North America*
- Refugia are small pockets of life that were for various reasons from the worst of the effects of the last ice age when the rest of the lands were barren and covered in ice.
- We now can create **refugia** to protect our lands in PA and beyond!



A photograph of a garden bed. The garden is divided into sections by black plastic mulch. On the left, there are rows of green leafy vegetables, possibly lettuce or spinach. On the right, there are rows of yellow and orange marigolds. The ground between the rows is covered with brown mulch. In the background, there is a concrete path and some other plants. The text "Your Garden / Land as Refuge!" is overlaid in white, sans-serif font in the center of the image.

Your Garden / Land
as Refuge!

Refugia Examples

**The Backyard
Perennial Garden**

**The Part-Shade
Garden**

**The Full Shade
Forest Garden**



A Note on Species at Risk

- **Use Lists** maintained by government or non-profit organizations designed to identify species that are: endangered, threatened, or at risk:
 - Pennsylvania Department of Conservation of Natural Resources (DCNR) Lists (DCNR)
 - United Plant Savers Species at Risk List (UPS)
- **Native Plant and Tree Lists** are also really useful here!
- **Use your own observations:** what species are missing/on the decline in your immediate area?



The Backyard Garden

Goals

- **For humans:** food, medicine, beauty
- **For the ecosystem:** creating a bank of seeds to spread into other areas, specifically for threatened species and/or those species that need to be more present in the broader ecosystem
 - **Add Perennials:** support a richer ecosystem, spread native plants



Species

At Risk Species

- **Arnica** (*Arnica* spp.) UPS
- **Echinacea** (*Echinacea* spp.) UPS
- **Butterfly Weed** (*Asclepias tuberosa*), PA DCNR
- **New York Aster** (*Symphyotrichum novi-belgii*)
- **White Heath Aster** (*Symphyotrichum ericoides*)

Native Plants for Insect Support

- **Common Milkweed** (*Asclepias syriaca*)
- **New England Aster** (*Symphyotrichum novae-angliae*)

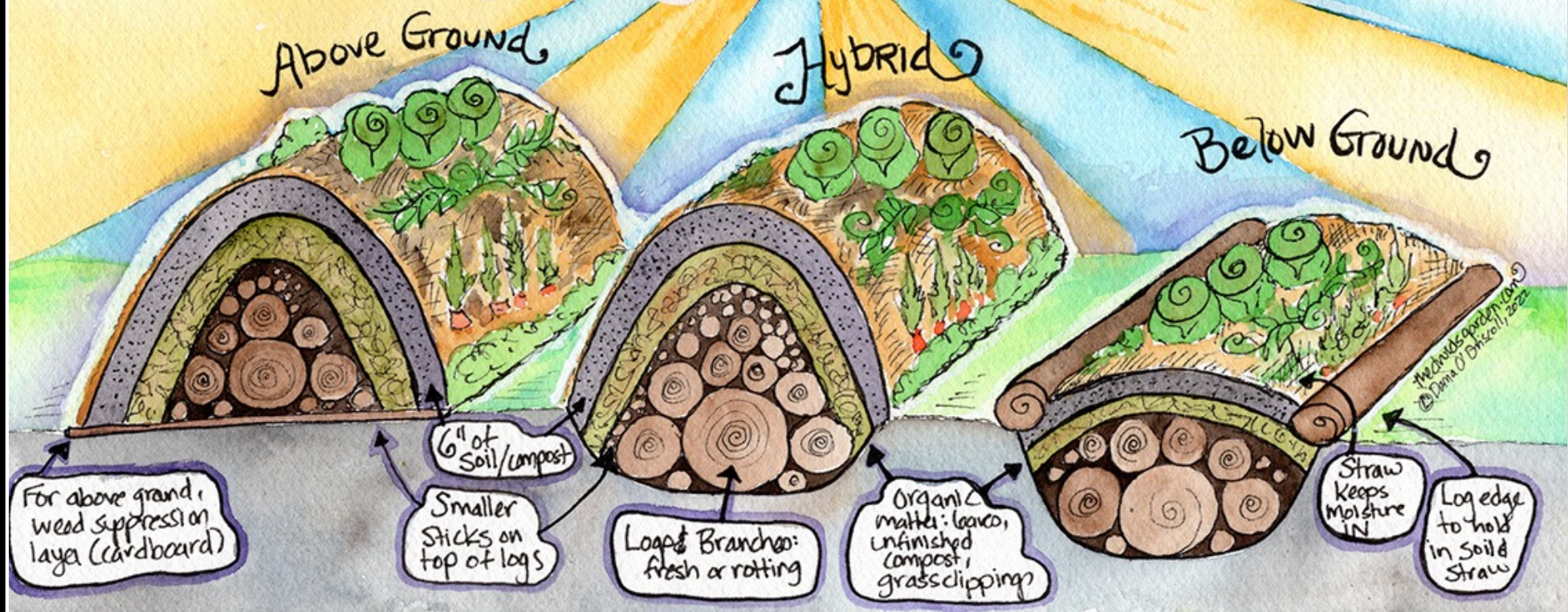




Homestead Vegetable & Perennial Herb Garden



Hügelkultur



Build Beautiful Soil with Local Resources



Example Garden #2: Part Shade Garden or Wetland Garden

- Goal:
 - Provide habitat for reptiles and amphibians with existing water features
 - Grow a range of at-risk species

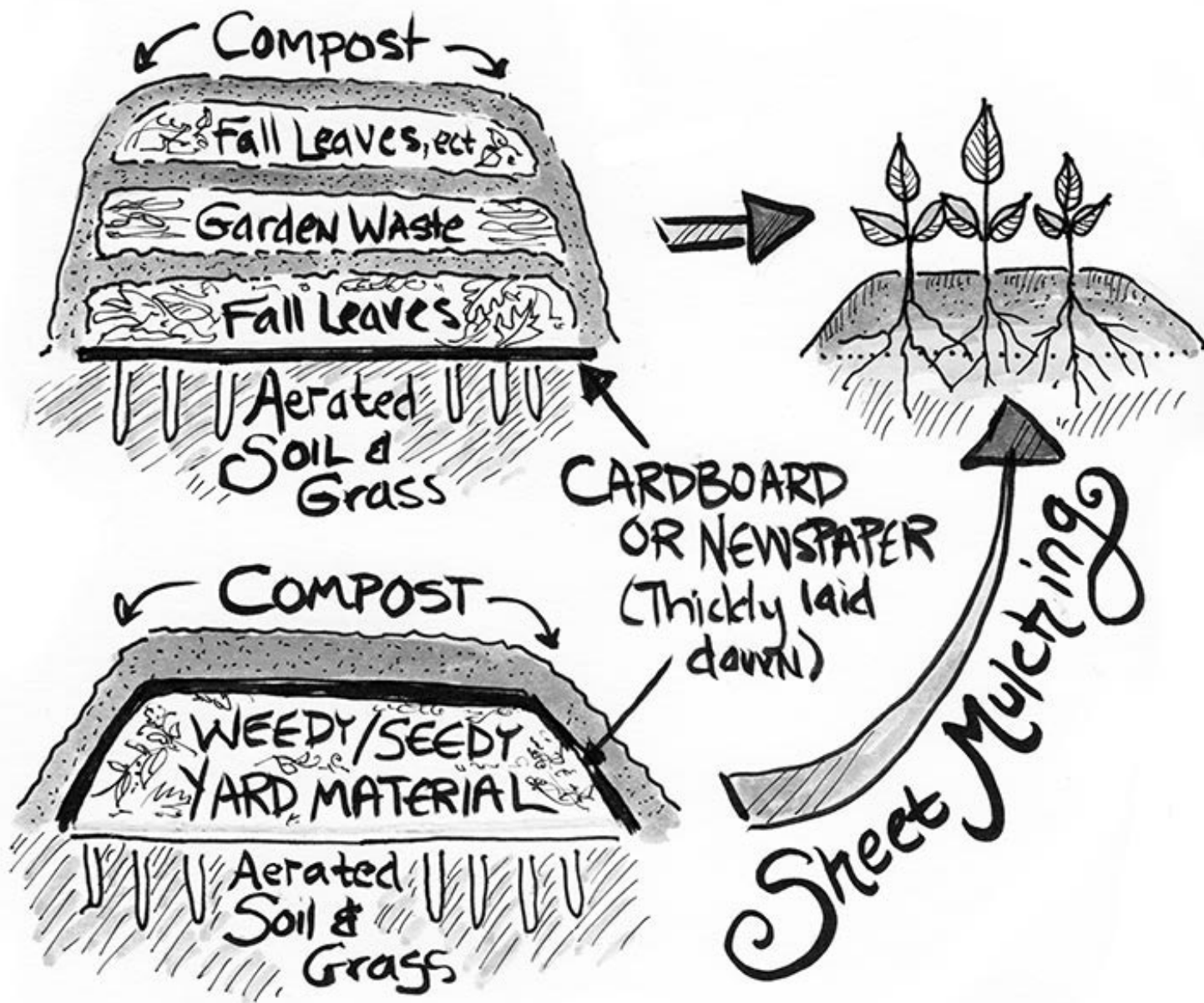


Species List

- **Shrubs and bushes**
 - Highbush-cranberry (*Viburnum trilobum*) *PA Threatened
- **Plants**
 - Appalachian Blue Violet (*Viola Appalachians*) PA Threatened
 - Wild Bean (*Strophostyles umbellate*) *PA Threatened
 - Black Cohosh (*Actaea racemosa*) *UPS
- **Wetland edge plants**
 - Spotted Joe Pye Weed (*Eutrochium maculatum*) *PA Threatened
 - Sweet Flag (*Acorus calamus*) UPS, *PA Endangered







From Dana's Book *Sacred Actions: Living the Wheel of the Year through Earth-Centered Sustainable Practices*



Soil Building: Sheet Mulching and Mimicking the Forest Floor

Example #3: Full Shade Forest Food Forest & Refugia

- Observe and Interact
 - Mature oak-hickory overstory with selective logging = lots of damage to the forest floor.
- Question: what should this forest look like vs. what does this forest look like?



Trees and Shrubs

- **Serviceberry** (*Amelanchier canadensis*, *humilis*, *obovalis*, *sanguinea*) – DCNR PA Threatened
- **Slippery Elm** - *Ulmus rubra*, UPS
- **American Holly** (*Ilex Opaca*) – DCNR PA Threatened
- **Nannyberry** (*Viburnum cassinoides*) – DCNR PA Endangered
- **Blight-resistant American Chestnut** - *Castanea dentata*

Habitat supporters:

- Hardwood Nut trees (Hickory, Oak) – support diverse forests; do not respond well to logging
- Paw Paw (*Asimina triloba*): Massive amounts of fruit for wildlife
- Sassafras (*Sassafras Albidm*): Native tree, good habitat



Plants

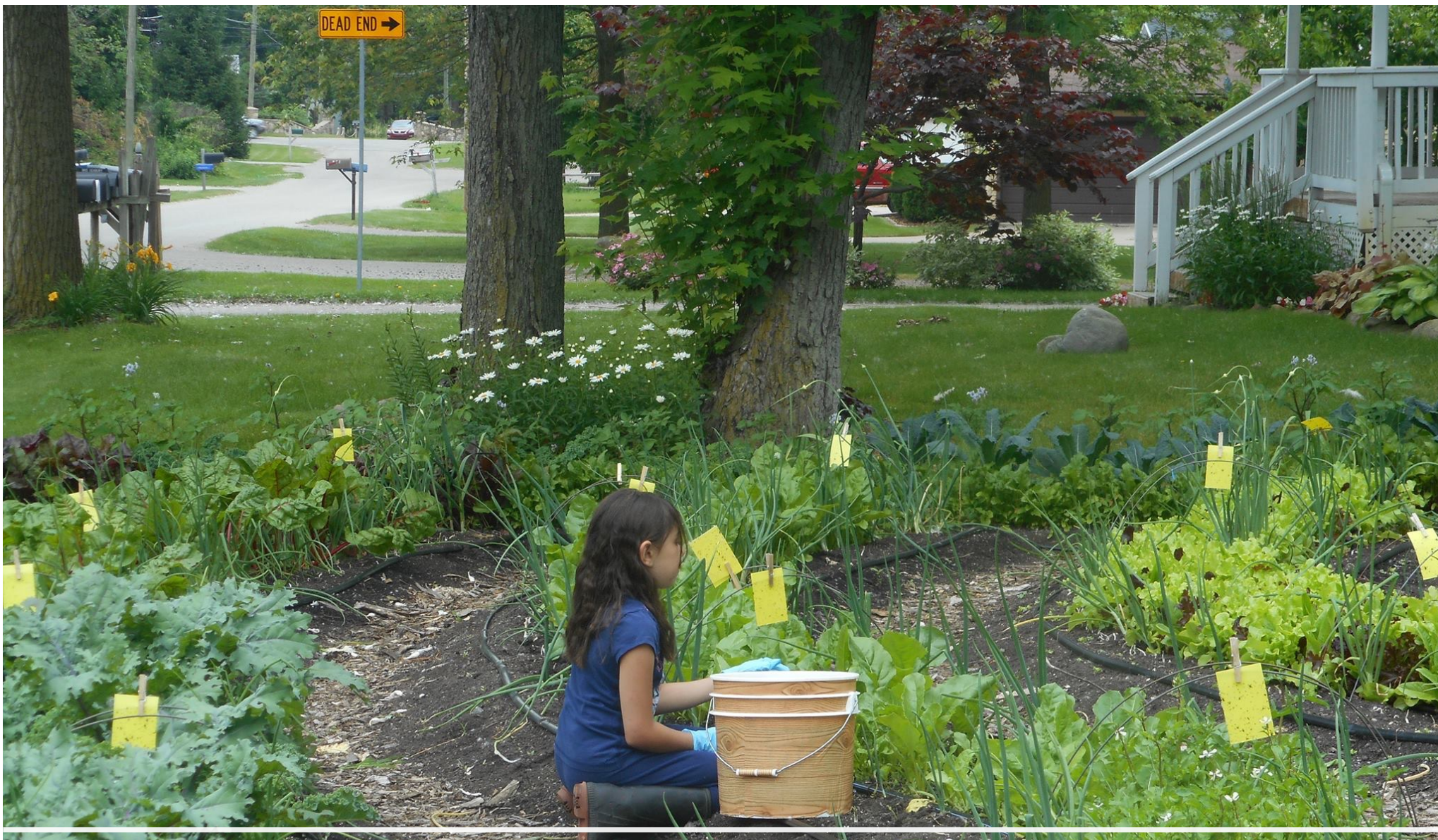
- Trillium (*Trillium* spp.) - UPS
- American Ginseng - *Panax quinquefolius* - UPS
- Blue Cohosh (*Caulophyllum thalictroides*) - UPS
- Goldenseal (*Hydrastis canadensis*) - UPS
- Ramps - *Allium tricoccum*- UPS
- Mayapple - *Podophyllum peltatum*
- Stoneroot - *Collinsonia canadensis* - UPS
- Ladyslippers - (*Cypripedium reginae*, *aurentiana*, *ennesseensis*) - DCNR PA Threatened
- Green and Gold (*Chrysogonum virginianum*) – DCNR PA Endangered



Support the Soil Web

- Healthy soil web:
 - Top 3" of soil is teeming with life
 - Billions of nematodes, fungi, protozoa, anthropods, organic matter, bacteria, and more
 - Holds tremendous amounts of water and nutrients
- **Minimize disruption**
 - Create paths for humans
 - Minimize tillage
 - Minimal soil disturbance
 - Let layers of leaves fall
 - Maximize biodiversity





Awesome! How do I get started?



Principles for Building Refugia

- **Setting goals:** What do you want to accomplish?
- **Observe and interact:** what kind of ecosystem can you support on your land and in your garden?
- **Learn about what species you can support** in your specific ecosystem
- **Plan for the long-term:** what will this look like in 5, 10, 25, or 50 years?
- **Teach others:** invite others into help, teach future generations
- **Enact your plan:** Create your refuge!
- **Observe and interact** as your refugium develops



A photograph of a dirt path winding through a dense forest. The path is narrow and leads into the distance, flanked by lush green vegetation and trees. The scene is captured in a slightly overcast or shaded light, emphasizing the textures of the leaves and branches.

Planning & Observation

NATURE'S HARVEST Urban Permaculture Farm



Take time to design!

- Create your design and vision!
- Consider not just next year but the next 5-15 years
- Consider soil building techniques
- Consider local seed and plant seed sourcing for native perennials
- Use local resources



Future Considerations

- Consider also the longer-term: design not for this year but for 10, 20 or even 30 years!
- Based on PA's REPORT ON CLIMATE CHANGE we will expect
 - More heavy rains
 - More extreme weather
 - More days over 90 degrees



Watch Your Refugia Grow

- Experience abundance
- Observe, interact, learn and enjoy
- Harvest food and medicine
- Feel about the difference you are making
- Produce seeds and plants to give away and scatter

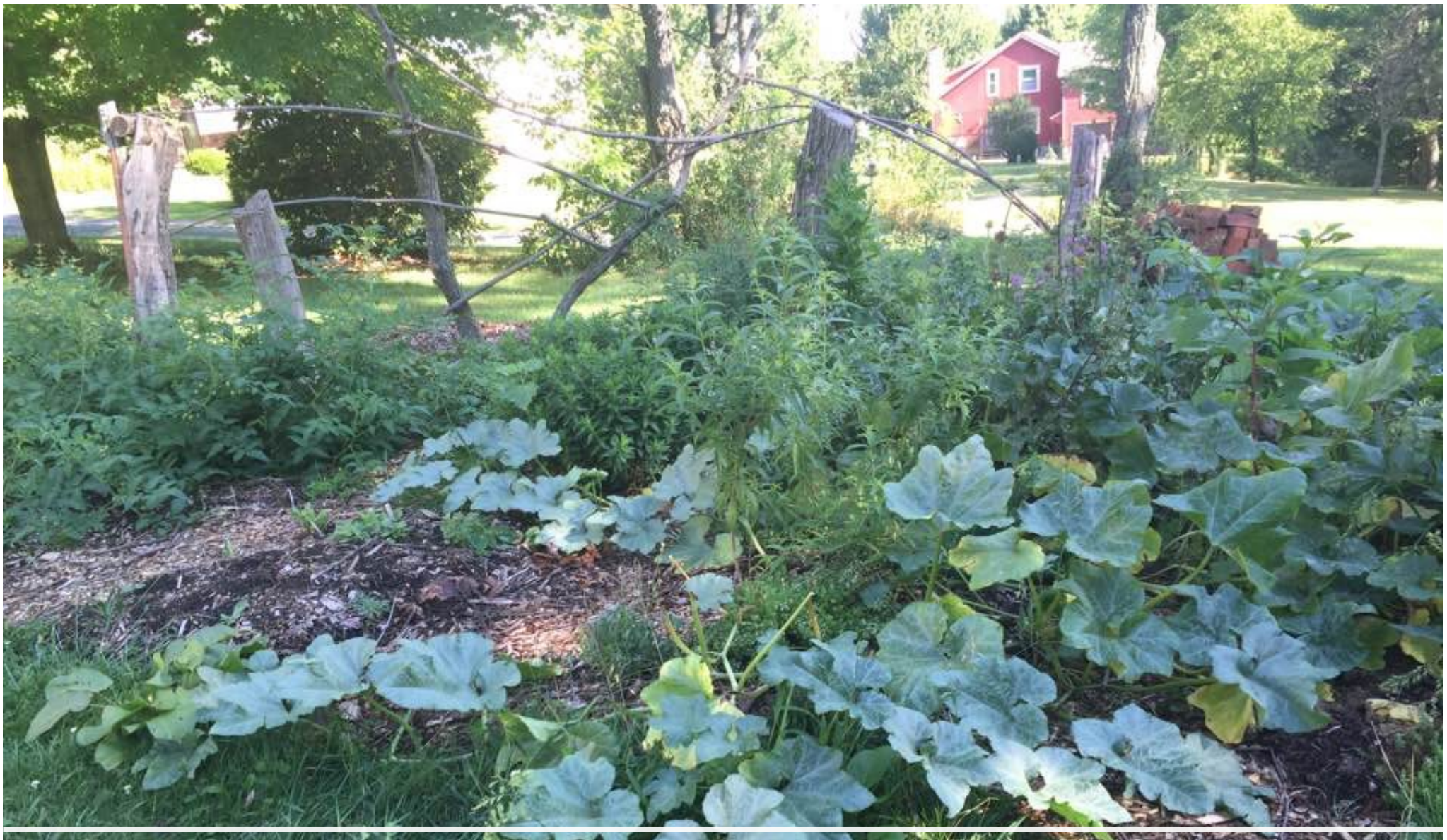
Spreading Seeds and Plants Outward

- Once these plants are established, they begin to produce and produce seeds and extra plants
 - Sharing these plants and seeds with others to grow
 - Rewilding – spreading these seeds in ecosystems where they are endangered or should be growing (especially in disrupted sites)
 - Creating seed balls





Refugia as Philosophy



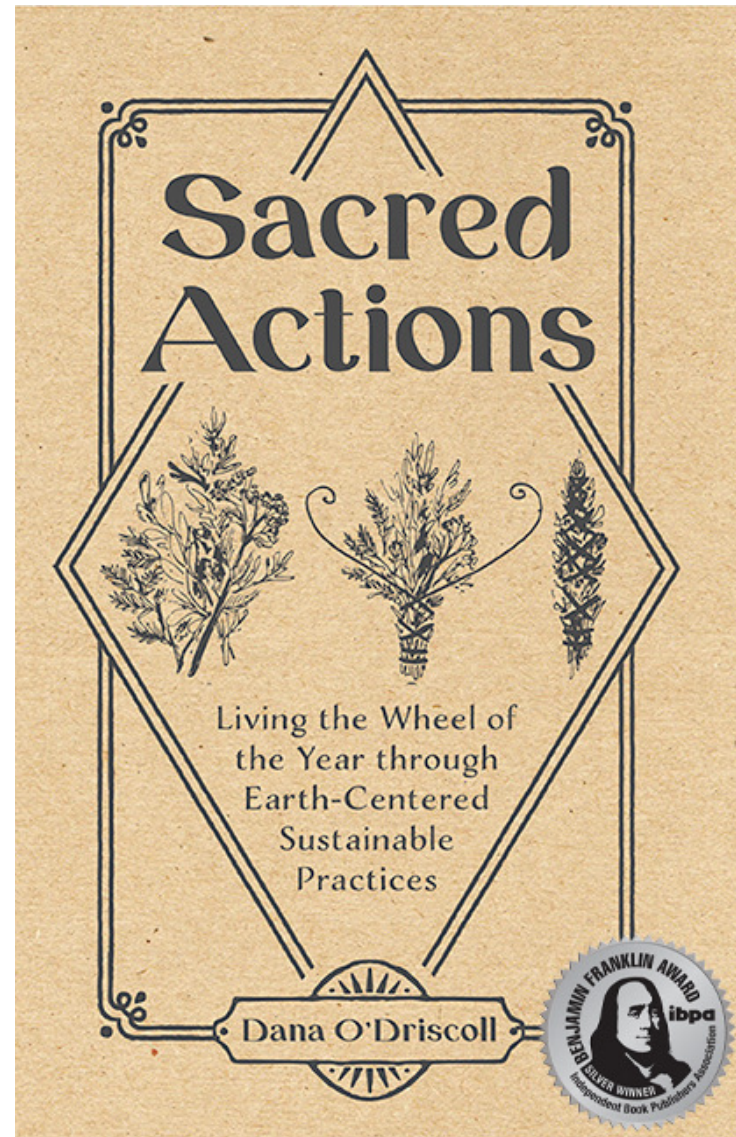
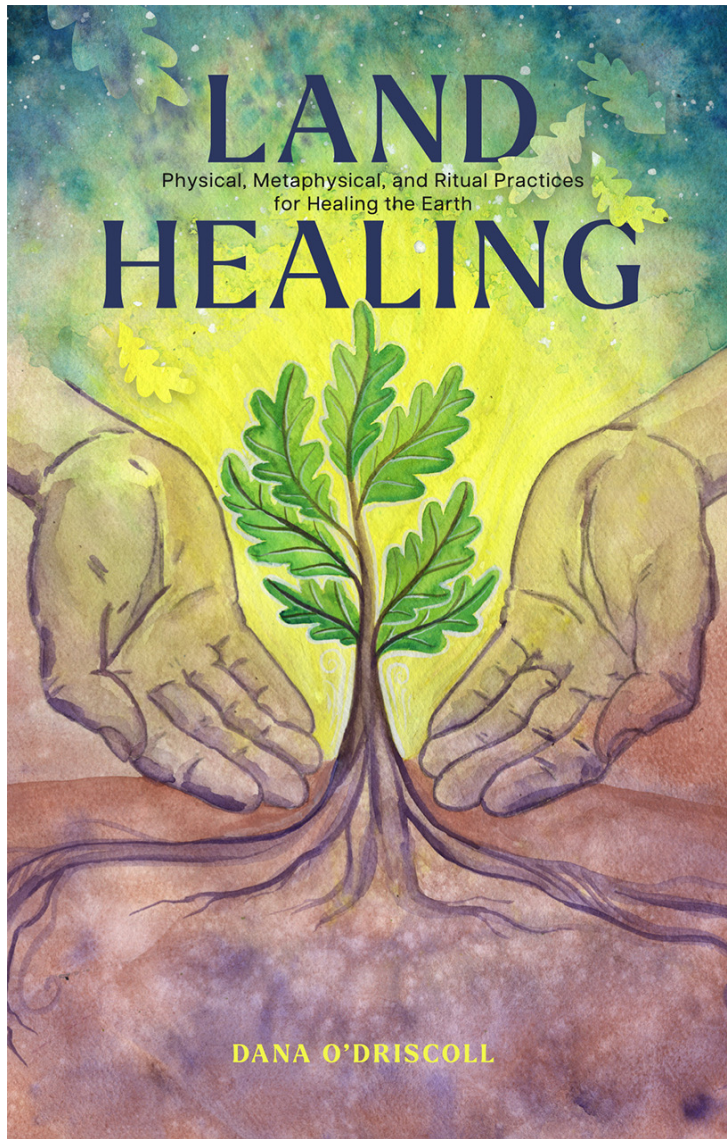
So what else can I do?



The Pennsylvania School of Herbal Studies

- www.paherbschool.com
- Plant walks and classes in Indiana County & Centre County, PA
- Holistic Herbalism Certificate





Dana's Books

