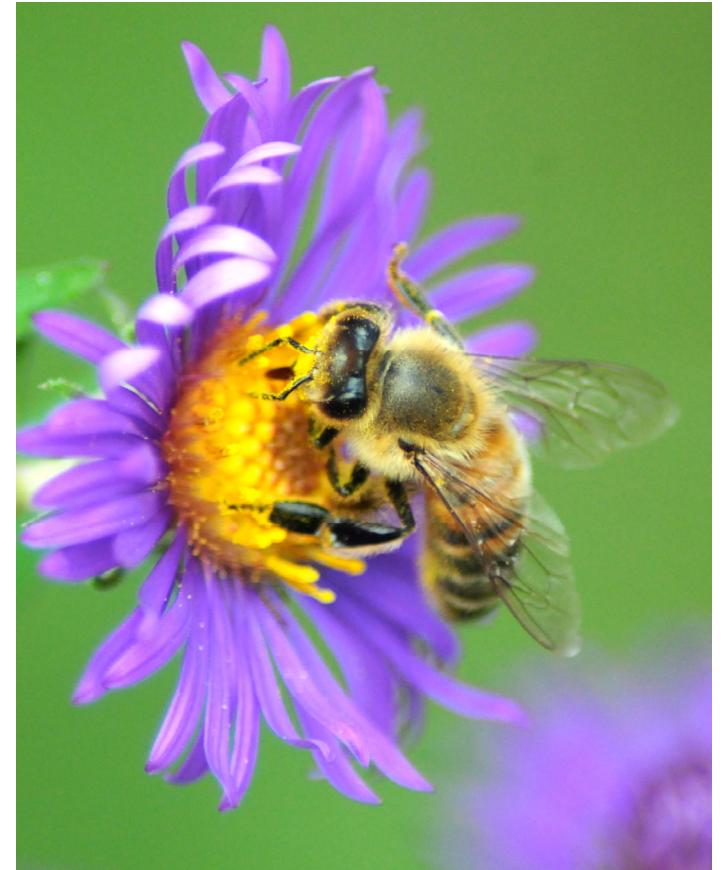


Native Habitat Restoration



Native plants are the roots of our natural biodiversity

- Specialized, mutually beneficial relationships (mutualisms) with local fauna
 - 90% of herbivore insects are species specific
 - Many butterflies have a single or small number of **host plants** that must be available for it to survive
 - Nectar and pollen (nutrition) sources for adult bees, larval bees and butterflies
 - Seed and insect source for songbirds and bats.
- Exotic species / More manipulated, Less Attractive





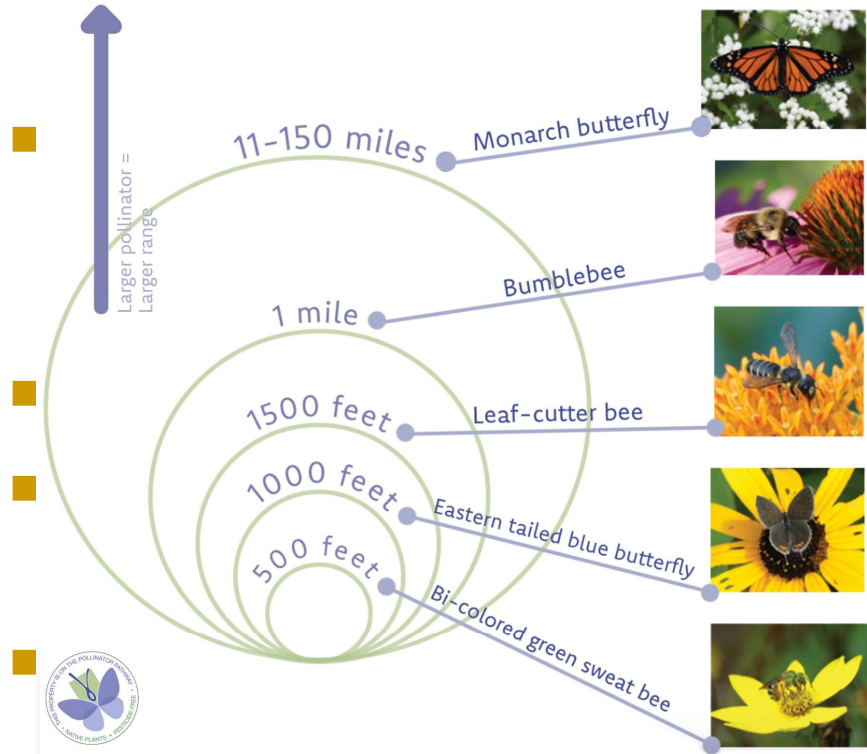
Native, Yes.. but Common, No!

- Easy to grow and reproduce in right environment
 - BUT...
 - Most common plants in residential areas are non-native
 - Local extinctions & benefits to wildlife reduced
 - Need to revive local populations
-

Start a new **HABITAT**[®]



How far can a pollinator fly to find food?



- Connecting our pollinator gardens along a pathway helps bees and butterflies thrive.



Pollinator Pathway

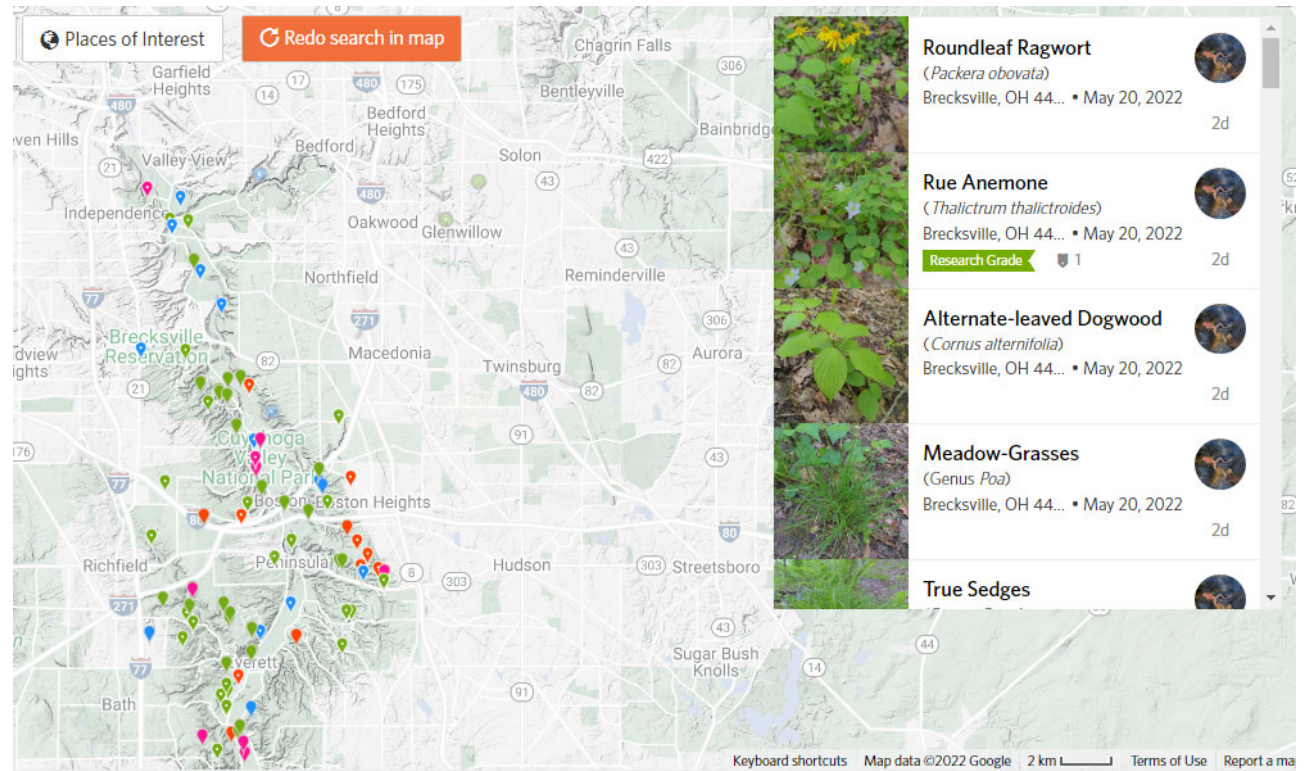
- Continuous native plant corridors that provide nutrition and habitat for pollinating insects and birds.
- De-fragments / connects private properties with parks / preserves
- <https://www.pollinator-pathway.org/>

Planning for Ecological Restoration in your Home Gardens

- Identifying plants / habitat types
 - Site preparation
 - Natives selection – what is your niche?
 - Design tips – naturalize or tidy
-

Identify plants in your yard!

- Inaturalist
- <https://www.inaturalist.org/>



Places of Interest Redo search in map

Roundleaf Ragwort
(*Packera obovata*)
Brecksville, OH 44... • May 20, 2022
2d

Rue Anemone
(*Thalictrum thalictroides*)
Brecksville, OH 44... • May 20, 2022
Research Grade 1
2d

Alternate-leaved Dogwood
(*Cornus alternifolia*)
Brecksville, OH 44... • May 20, 2022
2d

Meadow-Grasses
(Genus *Poa*)
Brecksville, OH 44... • May 20, 2022
2d

True Sedges

Keyboard shortcuts Map data ©2022 Google 2 km Terms of Use Report a ma

Destructive backyard invasive species

- Destructive backyard invasive species

- Bush honeysuckles, multiflora rose (moist understory)
- Reed canary grass (moist meadows)
- Garlic mustard (forests)
- Canada and bull thistle (sunny lawns)

- Challenges

- Treatment methods
 - Multiple year process
-

What are your habitat types?

- Consider your environmental conditions and their boundaries as an asset for a unique assemblage of plants.
 - Forested wetland: Shade, wet
 - Woodland: Full to partial shade, dry
 - Prairie: Full sun and dry
 - Wet Meadow: Full sun and wet



Sun



SUN LOVING WILDFLOWERS

WET TO MOIST SOIL



Foxglove beardtongue
(*Penstemon digitalis*)



Bluestar (*Amsonia tabernaemontani*)



Nodding wild onion (*Allium cernuum*)



Soldierwort (*Tradescantia ohioense*)



Narrowleaf mountainmint
(*Pycnanthemum tenuifolium*)



Clustered mountainmint
(*Pycnanthemum muticum*)



Buttonbush (*Cephalanthus occidentalis*)



Swamp milkweed (*Asclepias incarnata*)



Culver's root (*Veronicastrum virginicum*)



American black elderberry
(*Sambucus nigra* ssp. *canadensis*)



Wild quinine (*Parthenium integrifolium*)



Butterflyweed (*Asclepias tuberosa*)



Blue wild indigo (*Baptisia australis*)



Rattlesnake master
(*Eryngium yuccifolium*)



Crimson-eyed rosemallow
(*Hibiscus moscheutos*)



Queen of the Prairie
(*Filipendula rubra*)



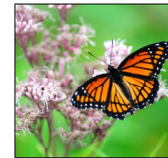
Blue mistflower
(*Conoclinium coelestinum*)



Dense blazing star (*Liatris spicata*)



Rough gayfeather (*Liatris aspera*)



Spotted joe-pye weed
(*Eutrochium maculatum*)



Tall ironweed (*Vernonia gigantea*)



Purple prairie clover (*Dalea purpurea*)



Sallow sedge (*Carex lurida*)



Sneezeweed (*Helenium autumnale*)



Tall larkspur (*Delphinium exaltatum*)



Greyhead prairie coneflower
(*Ratibida pinnata*)



Whorled rosinweed
(*Silphium trifoliatum*)



Cup plant (*Silphium perfoliatum*)



Tall coreopsis (*Coreopsis tripteris*)



Brown-eyed susan (*Rudbeckia triloba*)



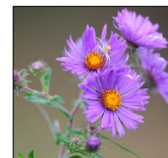
Riddell's goldenrod (*Oligoneuron riddellii*)



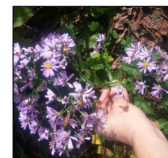
Rigid goldenrod (*Oligoneuron rigida*)



Early goldenrod (*Solidago juncea*)



New England aster
(*Symphyotrichum novae-angliae*)



Smooth blue aster (*Symphyotrichum laeve*)



Flat top aster (*Doellingeria umbellata*)



False sunflower (*Helopsis helianthoides*)



Ashy sunflower (*Helianthus mollis*)

Shade



WOODLAND WILDFLOWERS (SHADE / PARTIAL SHADE)

WET TO MOIST



Golden ragwort (*Packera aurea*)



Golden alexanders (*Zizia aurea*)



Foxglove beardtongue (*Penstemon digitalis*)



Miterwort (*Mitella diphylla*)



Wild columbine (*Aquilegia canadensis*)



Virginia bluebells (*Mertensia virginica*)



Jacob's ladder (*Polemonium reptans*)



Spotted crane's-bill (*Geranium maculatum*)



Blueflag iris (*Iris versicolor*)



Virginia waterleaf (*Hydrophyllum virginiana*)



American black elderberry (*Sambucus nigra ssp. canadensis*)



Green dragon (*Arisaema draconitum*)



Jack-in-the-pulpit (*Arisaema triphyllum*)



American spikenard (*Aralia racemosa*)



Red elderberry (*Sambucus canadensis*)



Canada anemone (*Anemone canadensis*)



White turtlehead (*Chelone glabra*)



Fringed loosestrife (*Lysimachia ciliata*)



Cardinal flower (*Lobelia cardinalis*)



Scarlet beebalm (*Monarda didyma*)



Great blue lobelia (*Lobelia siphilitica*)



American germander (*Teucrium canadense*)



American bladdernut (*Staphylea trifolia*)



Horse balm, Heal-all (*Collinsonia canadensis*)



Obedient plant (*Physostegia virginiana*)



Allegheny monkey flower (*Mimulus ringens*)



Blue mistflower (*Conoclinium coelestinum*)



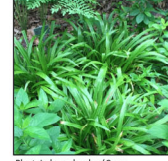
Hairy woodmint (*Blephilia hirsuta*)



Wild bergamot (*Monarda fistulosa*)



Spicebush (*Lindera benzoin*)



Plantain-leaved sedge (*Carex plantaginea*)



Downy skullcap (*Scutellaria incana*)



Fringed sedge (*Carex crinita*)



Green-headed coneflower (*Rudbeckia laciniata*)



Crooked stemmed aster (*Symphyotrichum prenanthoides*)



Bigleaf aster (*Eurybia macrophylla*)



Blue wood aster (*Symphyotrichum cordifolium*)



Zigzag goldenrod (*Solidago flexicaulis*)



Blue stemmed goldenrod (*Solidago caesia*)



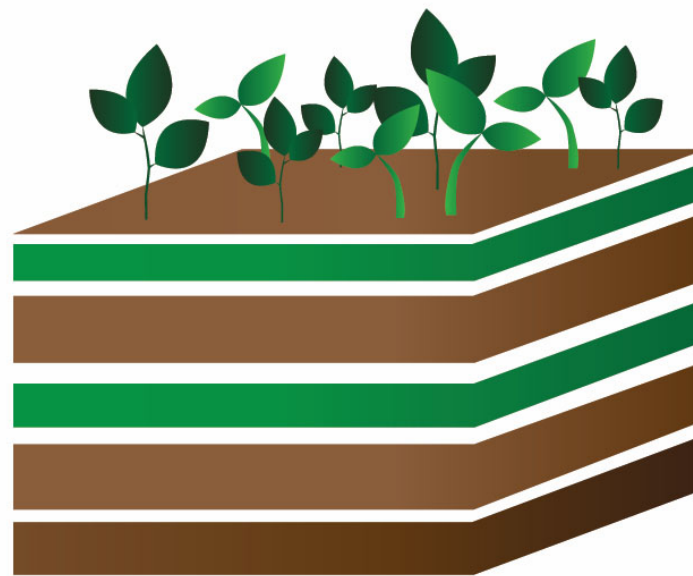
Woodland sunflower (*Helianthus divaricatus*)

Site Preparation

Prepare the site

- Define edge (if desired)
 - adds depth and a sense of boundary and tidiness
 - Remove lawn / invasive species
 - Lasagna gardening, black plastic
 - Manual removal
 - Herbicide / Vinegar solutions
-

Lasagna Gardening / Sheet Mulching



- ← Grass clippings, food scraps, weeds/cuttings
- ← Dried leaves, hay, newspaper, sawdust
- ← Grass clippings, food scraps, weeds/cuttings
- ← Dried leaves, hay, newspaper, sawdust
- ← Branches, mulch, twigs

Larger areas

- Use heavy-duty black polythene plastic sheeting
- Weigh or peg down
- Leave for 2-3 months in summer or six months in winter
- Mulch to stop new seed from germinating (4-6 inches)

Source: <https://lovelygreens.com/using-black-plastic-kill-weeds/>



Herbicide / Vinegar

- The only “safe” herbicide to use near water is Rodeo
- Alternative: Acetic acid (20%)
- Not specific – will kill anything.



Pleasant Hill Pollinator



Native Plant Selection

Plants for Pollinators

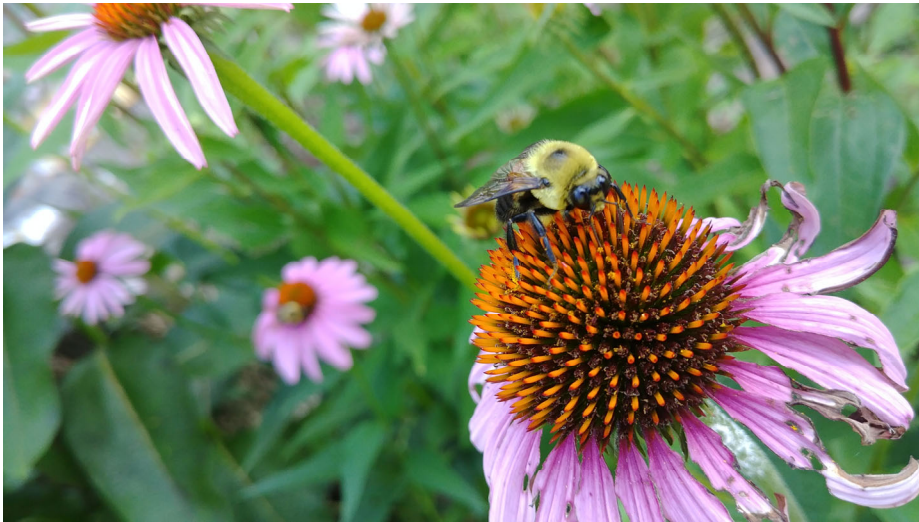


Echinacea purpurea (purple coneflower)

Summer - Fall

Dry and sunny

Prairie



- Recommended for feeding adult butterflies; at least 22 species:
 - Red admiral, painted lady, and swallowtails
 - Host: Silvery checkerspot
 - Seeds attract goldfinches, juncos, etc.
 - Caterpillars that hatch in late summer will winter at the base.. be careful with fall and spring cleanups!
-

Liatris spp. (gayfeather, blazing star)

Summer

Wet meadows (wet and sunny)

- Summer nectar plants:
 - adult butterflies, skippers, moths and long-tongued bees
- Bloom just in time for the monarch's great annual migration north; they tend to zoom in on this plant, as do hummingbirds and hummingbird moths



Symphotrichum spp. (asters)

- Hosts:
 - silvery checkerspot and pearl crescent butterflies, which over winter on them.
 - Isabella tiger moth, famous for its 'wooly bear' caterpillar.
- Attracts nearly 20 adult butterfly species
- Seed-eating birds: goldfinches, juncos
- Monarchs and bees depend on their late blooms for nutrition to stock up for the winter
- Includes bonesets and other plants in the asteraceae family



Fall

Variety of sun / moisture

Lobelia cardinalis (Cardinal Flower)



- ruby-throated hummingbird
- nectar source for larger butterflies:
 - black swallowtail
 - spicebush swallowtail
- Great blue lobelia has similar benefits.

Summer-Early Fall

Moist to wet, partial to full shade

Forested wetlands

Baptisia australis
(blue wild indigo)

- Hosts:
 - gray hairstreak
 - blue butterflies
 - sulphur butterflies
- Flowers attract hummingbirds, adult butterflies and bees
- Roots fix nitrogen



Spring

Dry, full to partial sun

Prairie

Silphium perfoliatum (Cup Plant)



Summer – Early Fall
Sun - Prairie

- The cups briefly accumulate rainwater that birds drink. “bird feeder and water source” make it one of the very best species for attracting birds, including goldfinches.
 - The dense colonies provide cover during the heat of the day
 - Hummingbirds, skippers, and butterflies:
 - silvery checkerspot, monarch, viceroy, red-spotted purple, question mark
 - Other *Silphium* species provide similar benefits to birds
-

Monarda fistulosa

Summer

Moist to dry

Wet meadow / prairie



- Hosts the sphinx moth
 - Attracts bee flies, butterflies, skippers, hummingbirds, moths, many different bee species
 - Chickadees and sparrows eat the seeds
-

Keystone Plants (Narango et al: <https://rdcu.be/caKj5>)

- Support the majority of caterpillars:
 - Quercus (oak)
 - Salix (willow)
 - Prunus (cherry, plums, peaches)
 - Pinus (Pines)
 - Populus (poplar, aspen, cottonwood)
 - Native habitat restoration without members of keystone genera are unlikely to support the diversity of lepidoptera species that landscapes with keystone genera do.
 - Perennials: asters, goldenrods, sunflowers
-

Advice for Ecological Landscaping

- Dedicate 70% or more of your garden space to native plants for ecological restoration! (Tallamy)
 - “Integrate ecological function into aesthetic form” (Rainier and West)
 - Add keystone species –for insects / insectivores
 - Clusters accentuate character
 - Accept they may grow, expand and reproduce
 - Mulch for a while, deadhead as needed (tidy look)
 - Or allow self-selection and adaption: death, competition, re-arrangement
 - Management: Mow once a year to control woody plants, if desired
-

Wild vs Tidy

■ Tidier Plants

- Purple and gray-headed coneflower, butterfly milkweed, wild indigos, blazing stars, clump type sedges & grasses

■ Naturalized Plants

- Large species: Joe-pye, ironweed, sunflowers, milkweeds
 - Rhizomatous species = obedient plant, bergamots, mountainmints, queen of the prairie, asters, goldenrods
-

Tidy

- Pre-designed 100% Native Plant Combos
- Enter Zip Code for Region
- Filter By Sunlight, Moisture, Wildlife
- Sourced from Qualified Native Growers



Deer resistance

- Milkweed
- Columbine
- Indigo
- Turtlehead
- Coneflower
- Lobelia
- Monarda
- Goldenrod
- Monkeyflower
- Coreopsis



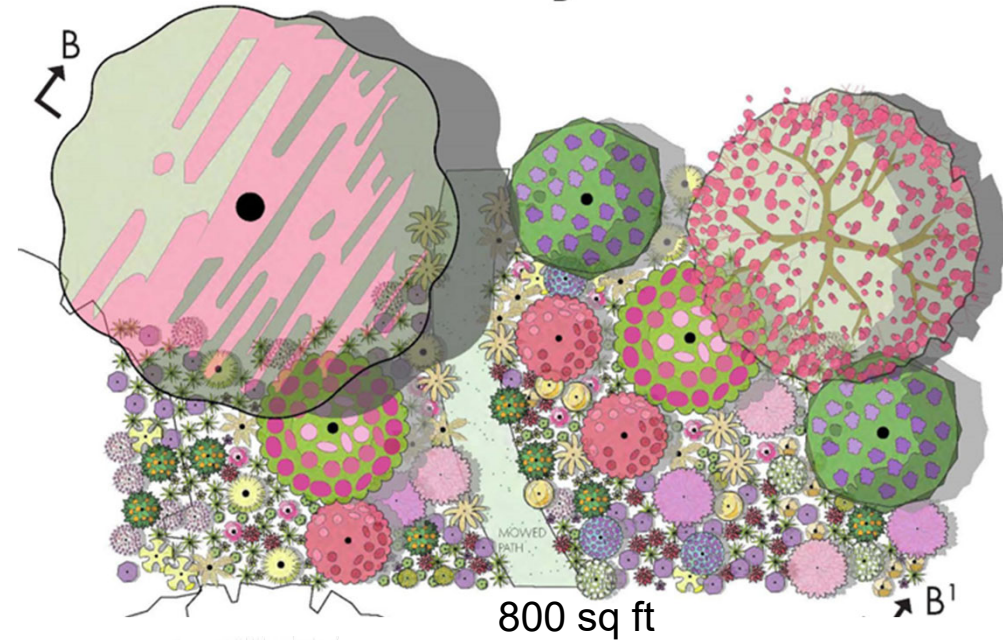
Questions?

General plant species for garden types

Woodland Garden:

Med to Moist Soil / Part Shade

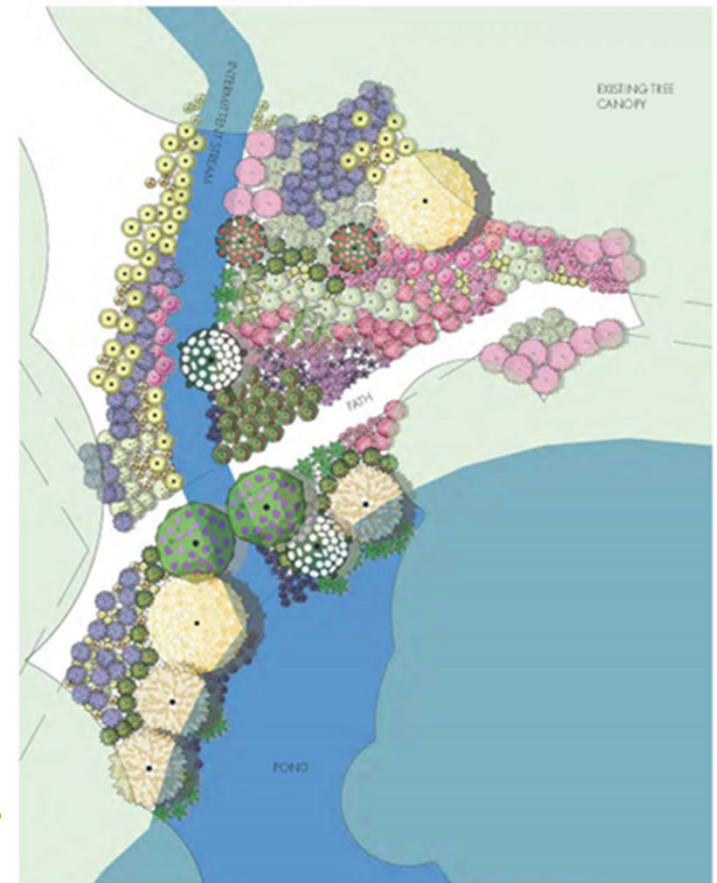
- **Trees:** flowering dogwood, eastern redbud, witch hazel, serviceberry, paw-paw, choke cherry
- **Shrubs:** purple flowering raspberry, blueberry, red elderberry, spicebush
- **Perennials:** large-leaved aster, zig-zag goldenrod, geranium, violets, alexanders, lobelia, columbine, sedges



Wet Meadow:

moist to wet soil, full sun/part shade

- **Trees:** willow, swamp white oak, cottonwood
- **Shrubs:** buttonbush, swamp rose, viburnum, dogwood
- **Perennials:** swamp milkweed, boneset, meadowsweet, wild bergamot, mountainmint, swamp goldenrod, bluestar, hibiscus, penstemon, blazing star, obedient plant, monkeyflower, sedges



Designs from Landscape Interactions, Northampton, MA

Sidewalk Strip:

Med to Dry Soils / Full sun

- **Trees:** oak, maple, birch, hawthorn
- **Shrubs:** Shrubby St johns wort, false indigo bush, wild roses
- **Perennials:** butterfly weed, wild indigo, hyssop, smooth blue aster, wild bergamot, mountainmint, goldenrod, coneflower, sunflowers, blazing stars, bluestar, little bluestem, Indian grass

