



Designing a Garden for YOU and for the Environment

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Presentation For

Carroll County Master Gardeners

October 9, 2021

Better Title:

Designing a Habitat for You and the Other Living Things in Your Environment

with the Goal of Developing and/or Contributing to Your Ecological Community

and an Emphasis on Plant Combinations and Companions that are Pleasing to You

Main Points

Design a habitat that is good for nature and that you will love !!!

Importance of gardens/habitats to the environment and to you

Design Fundamentals

Plan for four-season creature support and four-season interest

#1 request for gardens => COLOR How to balance color throughout the season

Importance of Your Garden to Local (and Global) Ecology

Plants eat pollution (carbon dioxide) for breakfast!

Educational opportunities.

A garden helps to ensure cleaner groundwater.

Gardens help keep soil in its place (reduce erosion).

Native plants require less maintenance.

Gardens can help to preserve and protect wildlife by providing food and shelter.

How to Find the Most Beneficial Natives

- Ozark Natives
 - Missouri Botanical Garden Plant Finder and MOBOT Planting Guide
 - https://www.canr.msu.edu/news/what_are_the_physical_and_mental_benefits_of_gardening
 - <https://www.missouribotanicalgarden.org/PlantFinder>
 - Botanical Garden of the Ozarks
 - <https://www.bgozarks.org/native-plants/>
 - White River Nursery
 - <https://www.whiterivernursery.com/ozark-native-plants>
 - Missouri Wildflower Nursery
 - https://mowildflowers-net.3dcartstores.com/Request-a-Catalog_ep_46.html
- Master Naturalists, Native Plant Society, Wild Ones, Xerces Society

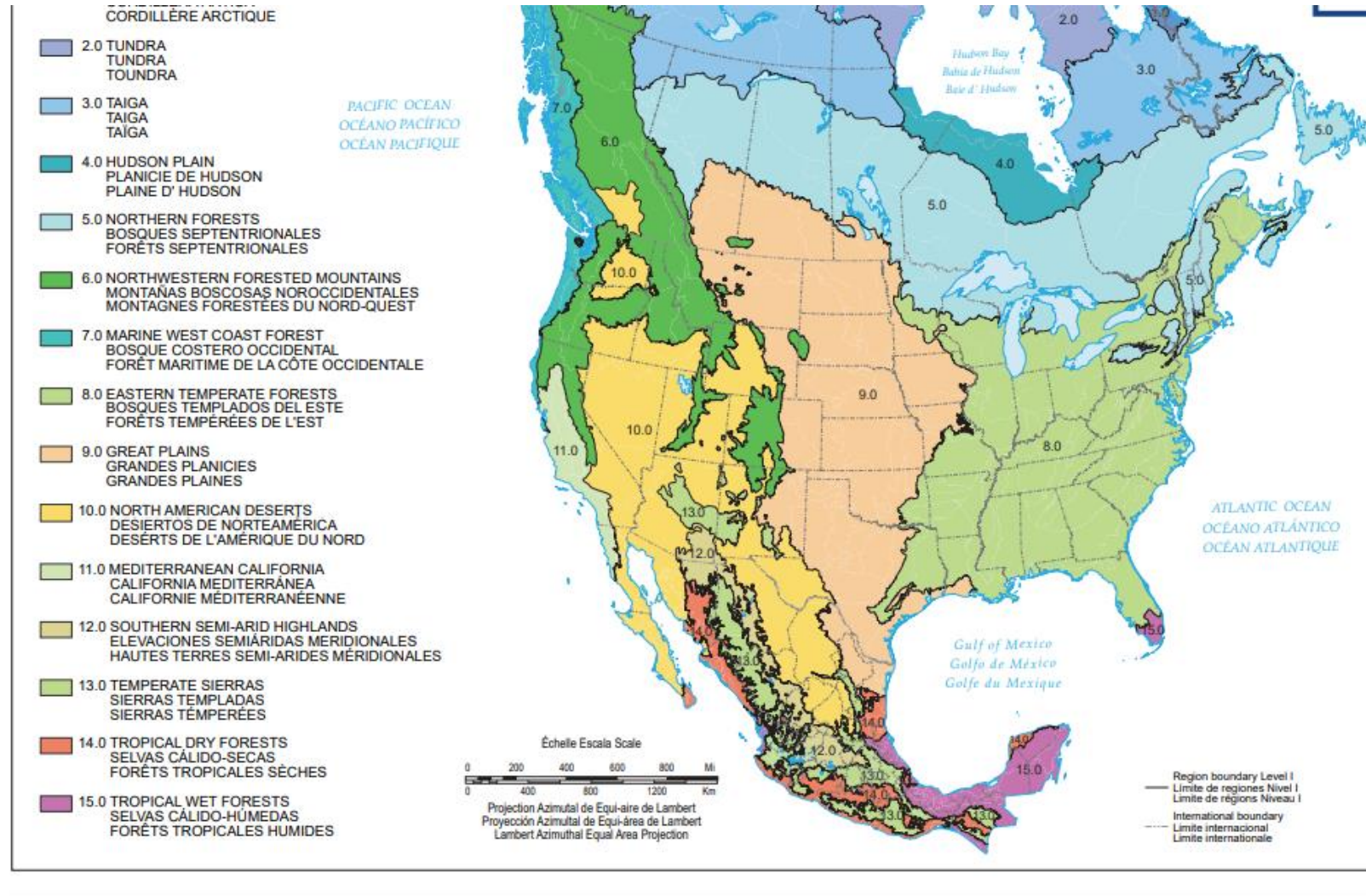
How to Find the Most Beneficial Natives

<https://www.nwf.org/-/media/Documents/PDFs/Garden-for-Wildlife/Keystone-Plants/NWF-GFW-keystone-plant-list-ecoregion-8-eastern-temperate-forests>

- There are two types of keystone plants:
 - Host plants that feed the young caterpillars of approximately 90% of butterflies and moths (Lepidoptera).
 - Plants that feed specialist bees who only eat pollen from specific plants. Keystone plants for native bees feed both specialist and generalist bees.
- Top Keystone Plant Genera in Eastern Temperate Forests - Ecoregion 8
 - A genus is a taxonomic category of plants that contains one or more species of plants with similar characteristics.
 - Species within each genus have adapted to local conditions and are the appropriate native species or varieties suited to a specific ecoregion.

How to Find the Most Beneficial Natives

National Wildlife Foundation Eco-Regions



Top Keystone Plant Genera in Eastern Temperate Forests – Ecoregion 8

A genus is a taxonomic category of plants that contains one or more species of plants with similar characteristics. Species within each genus have adapted to local conditions and are the appropriate native species or varieties suited to a specific ecoregion.

Plant Type	Plant Genus	Sample of Common Species (not all encompassing)	# Caterpillar Species that Use this as a Host Plant	# of Pollen Specialist Bee species that Rely on this Plant
Trees	<i>Quercus</i>	White oak (<i>Quercus alba</i>), Black oak (<i>Quercus velutina</i>)	436 	
	<i>Prunus</i>	American plum (<i>Prunus americana</i>), Black cherry (<i>Prunus serotina</i>), Chokecherry (<i>Prunus virginiana</i>)	340 	
	<i>Betula</i>	River birch (<i>Betula nigra</i>), Sweet birch (<i>Betula lenta</i>)	284 	
	<i>Populus</i>	Eastern cottonwood (<i>Populus deltoides</i>)	249 	
	<i>Acer</i>	Box elder (<i>Acer negundo</i>), Silver maple (<i>Acer saccharinum</i>), Sugar maple (<i>Acer saccharum</i>)	238 	
	<i>Malus</i>	Southern crabapple (<i>Malus angustifolia</i>), Sweet crabapple (<i>Malus coronaria</i>)	237 	
	<i>Carya</i>	Bitternut hickory (<i>Carya cordiformis</i>), Pignut hickory (<i>Carya glabra</i>), Mockernut hickory (<i>Carya tomentosa</i>)	213 	
	<i>Pinus</i>	Pitch pine (<i>Pinus rigida</i>), Eastern white pine (<i>Pinus strobus</i>), Virginia pine (<i>Pinus virginiana</i>)	200 	

Four-Season Creature Support

- Plants are not just for ‘bugs’
- Audubon Native Plant Finder for Bird, by zip code

American Witch-Hazel

Hamamelis virginiana



Also known as Common Witch-Hazel, Snapping Hazelnut, Striped or Spotted Alder, and Winterbloom, this perennial, fall-blooming, deciduous shrub or small tree grows 15 to 20 feet tall. It grows in full sun and partial shade, in dry to moist soil, but prefers rich, acidic, well-drained soil. American Witch-Hazel produces fragrant, yellow flowers with petals that resemble crumpled strips from October to December and greenish seed capsules that mature to light brown.

Attributes Shrubs, Trees, Fruit, Butterflies, Caterpillars, Nuts

May attract

Finches



Chickadees & Titmice



Mockingbirds & Thrashers



Waxwings



Woodpeckers



Wrens



https://www.audubon.org/native-plants/search?zipcode=72740&active_tab=best_results&attribute=&attribute_tier1=12896,12901,12911&resource=&resource_tier1=9072861&bird_type=&bird_type_tier1=&page=1&page_tier1=1

Four-Season Creature Support

- Mammals, reptiles, amphibians and fish are also vital components of a healthy ecosystem
 - Deer, mountain lions
 - Squirrel, chipmunks, rabbits
 - Bats
 - River otters, beavers
 - Toads and frogs
 -

Wildlife habitat should provide food, water, shelter and places to raise young

Plants trees and shrubs, not just perennials

Brush piles are a blessing to many creatures

Leave seed heads in place and acorns, etc. on the ground

Importance of Your Garden to YOU

It's good for your physical health.

- Being outside increases your exposure to Vitamin D
- The weight-bearing exercise of gardening is good for bones and reduces chance of heart attack and stroke
- Gardens with the right plants and trees can act as a natural air conditioner

It's good for your mental health

- It boosts your mood, mental clarity and feelings of reward. Nature has relaxing qualities, as a place for humans to find tranquility and healing.
- It turns out it's in the dirt. One study found that exposure to a bacteria common in soil increases levels of serotonin, the chemical that increases feelings of well-being. Another study even found that gardening decreases your risk of dementia!

Gardens build community.

- Gardens inspire conversation and they build connections among people.

The Garden as Your Habitat: Purpose/Objectives



How will you interact with space?

View it up close
Panoramic view



How will space be used?

Recreation
Entertainment
Cooking and Dining
Relaxation



Why is the garden being designed, re-designed, or updated?

Privacy
Block noise or view
Shade
Enhance appearance
Enhance ecology

What do you like about this garden?



What don't you like?



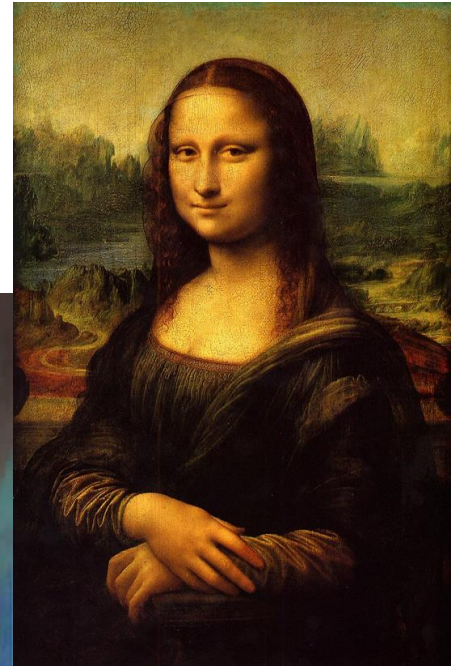
Do you like this one better?

How about this one?



A Garden that You Will LOVE!

- Please remember that tastes differ!



And Priorities Differ!

How do you like to spend your gardening time?



Design and
research



Shopping and
choosing
plants



Hands in the
Dirt: Digging,
planting,
weeding



Watering and
pruning



Viewing

Garden Design Fundamentals: Elements and Principles of Design

Elements are the characteristics of the components of the layout

- Space
- Line
- Form
- Texture
- Color

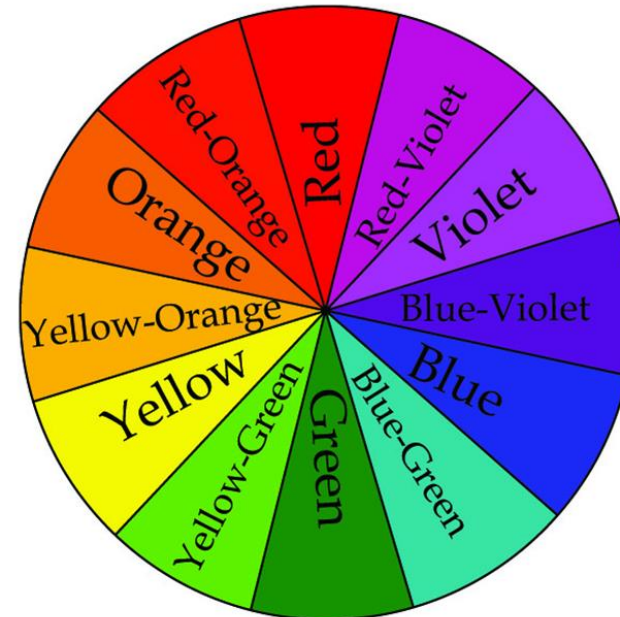
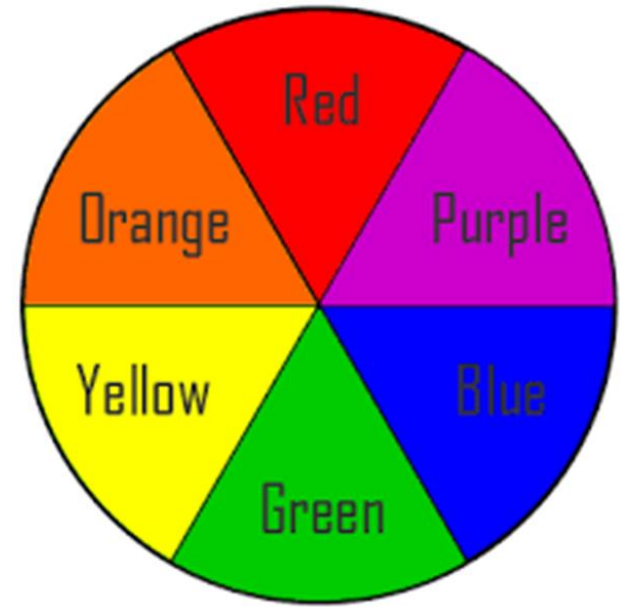
Principles are the guiding concepts used to arrange the elements

- Hierarchy/Layering
- Proportion/Scale
- Unity/Harmony
- Dominance/Focalization
- Repetition/Rhythm
- Balance

#1 Design Request is for **Color**

- Color Schemes

- Monochromatic - tints and shades
- Adjacent - primary color with colors derived from primary
- Complementary - opposites on the color wheel
- Triadic - 3 colors equidistant on color wheel
- Polychromatic - more than 3 color families



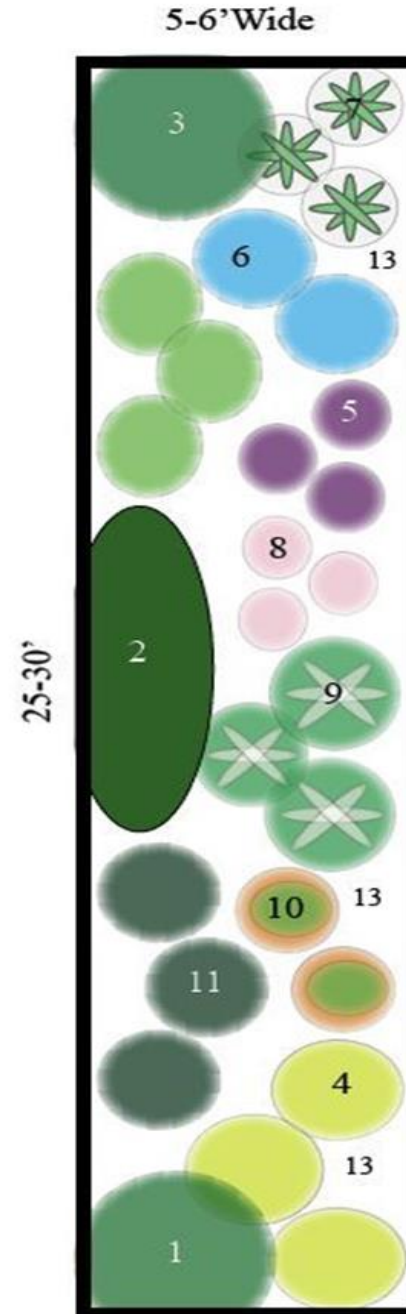
Four-Season Interest

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1		Name	Common Name	Light	Soil	Hght	Wdth	Blooms and Berries									Fall Colors	
2								J-F	M-A	M	J	J	A	S	O	N-D		
3	Tree-Understory	Hamamelis vernalis	Ozark Witch hazel	Sun - Part Sun	Moist	180	180	Flo									Leaves	
4	Shrub	Physocarpus opulifolius	Ninebark	Sun - Shade	Dry - Moist	96	96	Bark		Flowers				Berries		Bark		
5	Perennial	Lobelia cardinalis	Cardinal Flower	Sun - Part Shade	Moist	36	18						Flowers				Leaves	
6																		

<https://www.prairiemoon.com/catalogs/Prairie-Moon-Nursery-2021-Cultural-Guide-Insert.pdf>

<https://mowildflowers-net.3dcartstores.com/assets/images/Misc%20plant%20information/2020MWNCatalog-compressed.pdf>

Something like this
can be helpful,
BUT . . .



Rectangular Shade Garden
Plant this rectangular shade garden along a wall with eastern exposure (afternoon shade).

Use other small shade perennials and some annuals such as caladium, impatiens, and greenleaf begonias as fillers. Throw a few boulders in for added appeal.

Plant List:

- 1 - Grapeberry Mahonia (1)
- 2 - Little Gem Magnolia or Camellia Sasanqua
Espalier (against wall) (1)
- 3 - Oakleaf Hydrangea or Camellia Japonica (1)
- 4 - Sum & Substance Hosta (3)
- 5 - Purple Heuchera (3)
- 6 - Blue Hosta (2)
- 7 - Painted Fern (3)
- 8 - Pink Astilbe (3)
- 9 - Variegated Hosta (3)
- 10 - Autumn Fern (2)
- 11 - Elephant Ear (3)
- 12 - Southern Wood or Ostrich Fern (3)
- 13 - Use Vinca Minor, Blue Star Creeper, or creeping jenny as groundcover throughout garden.

Front Yard

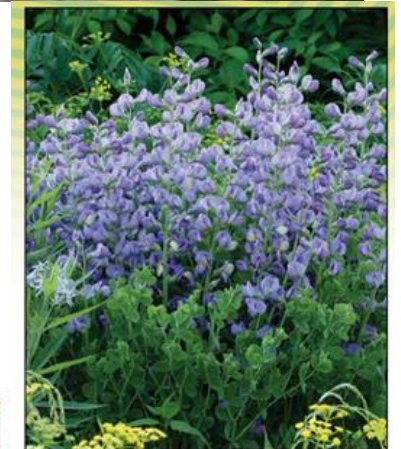
- Wild/Annabelle Hydrangea (*H. arborescens*)
 - 4'x6', Su-PSh, Avg, White, May-July
- Thimbleweed (*Anemone virginiana*) P
 - 16"x24', Su-PSh, Dry-Avg, White, May-Aug
- Blue Wild Indigo (*Baptisia australis*)
 - 24x24, Su, Dry-Avg, Blue, May-June
- Prairie Pussytoes (*Antennaria neglecta*)
 - 4"X10", Su-PSh, Dry-Avg, White, Apr-June



Wild Hydrangea ★ 🌿 🌿
Hydrangea arborescens



Thimbleweed ★ 🌿 🌿
Anemone virginiana



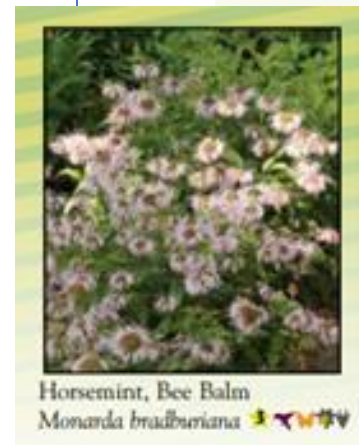
Blue Wild Indigo ★ 🌿 🌿
Baptisia australis



Prairie (field) Pussytoes ★ 🌿 🌿
Antennaria neglecta

Plant Combinations – Hummingbird Garden

- Red Buckeye (*Aesculus pavia*) Shrub
 - 12'x5', Su-Sh, Avg-M, Red, Apr-June
- Indian Pink (*Spigelia Marilandica*) Per
 - 24"x18", PSu-Sh, Avg-M, Red&Yellow, Ju-Ju
- Cardinal Flower (*Lobelia Cardinalis*) Per
 - 36"x18", Su-PSh, M, Red, Au-Se
- Bee Balm/Horsemint (*Monarda bradburiana*) Per
 - 22"x16", Su-Sh, Avg, Lavender, May-June
- Garden Phlox (*Phlox paniculata*) Per
 - 15"x15", Su-Sh, Avg-Moist, Pink, July-Sept



Plants for Bees

- Black Chokeberry (*Aronia melanocarpa*)
Shrub
 - 7'x7', Su-Sh, Avg-M, White, Apr-May, Red Foliage and Berries, Oct
- Beauty Berry (*Callicarpa American*)
Shrub
 - 4'x4', Su-PSh, Dry-Avg, Pink, June-Aug, Purple Berries, Oct-Nov
- Blazing Star (*Liatris aspera*, L. mucronate, L. pycnostachya, L. scariosa)
Perennial
 - 2'-4', Sun, Dry, Purple, July-Sept
- Showy Coneflower (*Rudbeckia fulgida*)
 - 25"x18", Su-PSh, Avg-M, Yellow, July-Sept
- Lanceleaf Coreopsis (*C. lanceolata*)
 - 20"x18", Su-PSh, Dry-Avg, Yellow, May-June



American Beautyberry 🌸 🍇



Eastern Blazing Star
Liatris scariosa 🌸 🍇



Orange & Showy Coneflower
Rudbeckia fulgida 🌸 🍇



Lanceleaf Coreopsis 🌸 🍇
Coreopsis lanceolata

Plants for Birds

- Elderberry (*Sambucus racemosa*) Shrub
 - 6'x5', Su-PSh, Avg-M, White, Apr-May, Berries in fall
- Elderberry (*S. canadensis*) Shrub
 - 8'x7', Su-PSh, Dry-Moist, White, Ju-Ju, Berries in fall
- Gray-head Coneflower (*Ratibida pinnata*) Perennial
 - 3'x2', Su-PSh, Avg, Yellow, Ju-Ju
- Missouri Coneflower (*Rudbeckia Missouriensis*) Perennial
 - 2'x2', Sun, Dry-Avg, Yellow, July-Aug



Red Elderberry 🌟🌸🌿
Sambucus racemosa



Elderberry 🌟💧🌿🌸
Sambucus canadensis



Gray-head Coneflower 🌟🌸🌿
Ratibida pinnata



Plant Combinations - Woodland Garden



Hollow Joe Pye Weed 🌸🌿🍂
Eutrochium fistulosum



Spice Bush 🌸🌿🍂
Lindera benzoin



Rose Turtlehead 🌸🌿🍂
Chelone obliqua



Bluebells 🌸🌿🍂
Mertensia virginica



Celandine Poppy 🌸🌿
Stylophorum diphyllum

- Spice Bush (*Lindera benzoin*) Shrub
 - 10'x8', PSh-Sh, Avg-M, Yellow, Fe-Ma
- Hollow Joe Pye Weed (*Eutrochium fistulosum*) Perennial
 - 4'-8'x2'-3', Su-PSh, Avg-M, Pink, July-Sept
- Rose Turtlehead (*Chelone obliqua*) Per
 - 3'-4', Su-PSh, Avg-M, Rose-pink, Sept-Oct
- Obedient Plant (*Physotegia augustifolia*)
 - 4'x5', Su-PSh, Avg-M, Pink, June-July
- Bluebells (*Mertensia virginica*) Perennial-Ephemeral
 - 18"x18", Su-Sh, Avg-M, Blue/Pink, Apr-May
- Celandine Poppy (*Stylophorum diphyllum*) Perennial
 - 20"x18", Sh, Avg-M, Yellow, Apr-May

Is It Really Native?

Why Isn't It on Any of the 'Lists'?

- How far from the species can we go and still consider it beneficial?
 - Redbuds
 - Echinacea
 - Hydrangea (arborescens)
- What is a native has not been listed as beneficial?
 - Heuchera/Alumroot/Coral Bells
- More questions?

Thanks so much for inviting me!

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