

# Designing Gardens to Support the Native Web of Life

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## Biodesign

Focuses upon:

- Creating soothing designs that reduce our blood pressure and provide entertainment.
- Preserving mycorrhiza and life in the soil.
- Using plants that nourish pollinator and insect life, which in turn will nourish the balance of the food chain (birds, fox, coyote, etc.).
- Provide habitat for pollinators and insect life.
- Reduce the Carbon footprint of people on the environment.

## Trees

Benefits go beyond just feeding wildlife:

- The USDA has also calculated that 1 acre of forest absorbs upwards of 6 tons of CO<sub>2</sub> and emits 4 tons of O<sub>2</sub>. That is enough to meet the needs of 18 people!
- Evergreens placed along the NW side, block the winter's winds, heating expense can be lowered by 20-50%
- Shade Trees create a microclimate around the home and according to the USDA Forest Service, can reduce air conditioning expense by 30%.
- According to the USDA Forest Service, a tree placed on the SW side of the home can reduce air conditioning expense by 30%.
- Texas A&M University found that visual exposure to settings with trees produced a significant recovery from stress within a 5 minute period, as denoted by changes in blood pressure and muscle tension.
- Pregnant women with trees around their homes were less likely to have under-weight babies than those without trees.
- Areas impacted by the spread of emerald ash borer across 15 states – first recorded in 2002 – was associated with an additional 15,000 deaths from cardiovascular disease and an additional 6,000 deaths from lower respiratory.

Woody plants providing food for adult birds:

<i>Amelanchir</i> spp.	Orioles, Tanagers, Bluebirds and Towhees
<i>Aronia arbutifolia</i>	Meadowlark, Catbirds and Cedar Waxwing
<i>Aronia melanocarpa</i>	Blue Jays, Mockingbirds
<i>Cornus florida</i>	Waxwings, Catbirds, Bluebirds, Robins, Hermit Thrush and Mockingbirds
<i>Hydrangea arborescens</i>	Chickadee, Carolina Wren
<i>Ilex opaca, I. verticillata</i>	Waxwings, Catbirds, Bluebirds, Robins, Hermit Thrush and Mockingbirds
<i>Juniperus virginiana</i>	Blue Bird, Catbird, Evening Grosbeak, Hermit Thrush, Myrtle Warbler, Crossbill and Waxwings
<i>Magnolia acuminata, M. virginiana</i>	Red-eyed Vireos, American Redstart, Towhees,
<i>M. macrophylla</i>	Robins, Ruffed Grouse, Wild Turkeys, Northern Flicker, Pileated Woodpecker, Crested Flycatcher and Blue Jays
<i>Nyssa sylvatica</i>	Rose Breasted Grosbeak and Cedar Waxwings

<i>Rhus</i>	More than 95 species incl. Woodpeckers, Chickadees and Tanagers.
<i>Viburnum dentatum, V. nudum</i>	Robins, Grosbeaks, Thrushes, Waxwings, Catbirds, Thrashers, Towhees, Bobwhites, Cuckoos, Cardinals and Bluebirds

Herbaceous plant providing food for adult birds:

<i>Aster</i>	Feed 109 species of caterpillars, Cardinals, Towhees, Chickadees, Goldfinches, Indigo Buntings, Nuthatches and Sparrows
<i>Coreopsis</i>	Sparrows, Chickadees, Cardinals, Goldfinches
<i>Echinacea</i>	Blue jays, Cardinals and Goldfinches
<i>Eupatorium</i>	Chickadees, Wrens and Titmice. Also provides the 'fluffy' materials to build nests
<i>Monarda</i>	Sparrow, Goldfinch
<i>Rudbeckia</i>	Goldfinches, Nuthatches, Chickadees and Towhees
<i>Solidago</i>	Juncos, Sparrows and Finches and 100+ spp. of moth and butterfly larva!
<i>Sporobolus heterolepsis</i>	Sparrows, Junco

### Shrubs and Shrub-like Perennials

- Craft space and spatial sequences

<i>Rubus odoratus</i>	Thimble Berry
<i>Taxodium distichum</i> 'Cascade Falls'	Weeping Bald Cypress
<i>Metasequoia glyptostroboides</i>	Dawn Redwood
<i>Hydrangea arborescens</i> 'Annabelle'	Smooth Hydrangea
<i>Hydrangea arborescens</i> 'White Dome'	Smooth Hydrangea
<i>Diervilla lonicera</i> 'Copper'	Northern Bush Honeysuckle
<i>Baptisia australis</i>	False Indigo

### Herbaceous

- The materials for decorating the spaces and providing detail
- Predominantly for color, texture, motion and detail.

### Sweeps

<i>Panicum virgatum</i> 'Dallas Blues'	Switch Grass
<i>Eupatorium purpureum</i> 'Little Joe'	Joe Pye Weed
<i>Helianthus angustifolius</i>	Swamp Sunflower
<i>Hydrangea paniculata</i> 'Limelight'	Panicle Hydrangea
<i>Ilex verticillata</i>	Winterberry Holly
<i>Taxodium ascendens</i> 'Debonair'	Bald Cypress
<i>Amsonia hubrichtii</i>	Blue Star Amsonia

### Stone and Organic Mulch

Gravel – good for keeping crowns dry

Shredded and chipped wood – requires energy input

Shredded leaves – requires some energy input, but is the natural occurring mulch

### Green Mulch

<i>Carex pensylvanica</i>	Oak Sedge
<i>Sporobolus heterolepis</i>	Prairie Dropseed
<i>Pachysandra procumbens</i>	Alleghany Pachysandra
<i>Packera aurea</i>	Golden Ragwort
<i>Asarum canadense</i>	Canadian Ginger
<i>Tiarella cordifolia</i> ‘Running Tapestry’	Foam Flower
<i>Polemonium caeruleum</i>	Jacob’s Ladder
<i>Claytonia virginica</i>	Spring Beauty
<i>Iris cristata</i> ‘Powder Blue Giant’	Dwarf Crested Giant
<i>Iris cristata</i> ‘Tennessee White’	Dwarf Crested Giant
<i>Solidago caesia</i>	Blue Stem Goldenrod
<i>Solidago sphacelata</i> ‘Golden Fleece’	Heart Leaved Goldenrod
<i>Muhlenbergia capillaris</i>	Pink Muhly Grass
<i>Echinacea purpurea</i>	Purple Cone Flower

### Moving Above the Ground Plane

- It is best to blend the plants together and not use them in ‘blocks’.
- Blending plants produces more dimension and interest to the landscape.
- Layering of plants of different heights also provides a more interesting appearance.

<i>Calamagrostis x acutiflora</i> ‘Karl Foerster’	Feather Reed Grass
<i>Eupatorium maculatum</i> ‘Phantom’	Joe Pye Weed
<i>Calamagrostis x acutiflora</i> ‘Karl Foerster’	Feather Reed Grass
<i>Eupatorium</i> ‘Little Joe’	Joe Pye Weed
<i>Calamagrostis x acutiflora</i> ‘Karl Foerster’	Feather Reed Grass
<i>Rudbeckia maxima</i>	Dumbo Ears
<i>Calamagrostis x acutiflora</i> ‘Karl Foerster’	Feather Reed Grass
<i>Aster tataricus</i> ‘Jindai’	Tatarian Aster
<i>Rudbeckia maxima</i>	Dumbo Ears
<i>Monarda fistulosa</i>	Bergamot
<i>Echinacea purpurea</i>	Purple Cone Flower

*Coreopsis grandiflora*  
*Echinacea pallida*  
*Sporobolus heterolepis*

Tickseed  
Pale Purple Cone Flower  
Prairie Dropseed

### Montana

*Vaccinium membranaceum*  
*Anaphalis margaritacea*

Huckleberry  
Pearly Everlasting

### Potential Substitutes

*Itea virginica* ‘Henry's Garnett’  
*Aronia melanocarpa*  
*Rhododendron prunifolium* (seedlings provide a long season of bloom)  
*Eryngium yuccifolium*

Virginia Sweetspire  
Black Chokeberry  
Plumleaf Azalea  
Rattlesnake Master

Monarch butterflies, skippers, and a diversity of bees, wasps, and flies visit the flower heads for nectar. Soldier beetles visit the flowers to eat pollen.

*Asclepias tuberosa*  
*Calamagrostis x acutiflora* ‘Karl Foerster’  
*Eryngium yuccifolium*  
*Pycnanthemum muticum*  
*Rudbeckia maxima*

Milkweed  
Feather Reed Grass  
Rattlesnake Master  
Mountain Mint  
Black-eyed Susan

### Repetition of Flower Form

*Veronicastrum virginicum* <https://go.rutgers.edu/mz04vyy9>

NJAES Home, Lawn and Garden webpage, it is the plant of the month, July 2021!

*Aesculus parviflora*  
*Aesculus parviflora* var. *serotina* ‘Rodgers’

Culvers Root  
Bottlebrush  
Bottlebrush Buckeye

*Cimicifuga (Actea) racemosa*

Black Snakeroot

### **Wet Sites**

*Carex stricta*

Tussock Sedge

*Iris versicolor*

Blue Flag Iris

*Typha latifolia*

Cattail

*Lobelia cardinalis*  
*Carex brevior*  
*Sarracenia* spp.

Cardinal Flower  
Plains Oval Sedge  
Pitcher Plant

### **Got Deer?**

*Actea pachypoda*

Dolls Eyes

*Aesculus parviflora*

Bottlebrush Buckeye

*Dicentra cucullaria*

Dutchman's Breeches

*Pycnanthemum muticum*

Mountain Mint