

Returning NC Native Plants to Piedmont Landscapes



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NC STATE

EXTENSION

Mark your calendar!

- **Plants, Pests and Pathogens** webinar, June 19, 10:00 – noon
 - Diagnosing and Correcting Soil Problems, Steph Drazl
 - **2019 EMG College, June 6-9**
 - NCSU campus
 - New lodging facilities – University Towers
 - Many great speakers!
 - More info later this summer
-

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NC STATE

Extension Master Gardener

Return of the Natives

- Why plant natives?
- Defining native
- A few great natives for Piedmont landscapes
- Resources to learn more!



Eastern Columbine,
Aquilegia canadensis

Why Plant Natives?

Natives are needed to:

- To support a **diverse array** of insects, birds and animals
- **Sustain healthy ecosystems**



Healthy Ecosystems

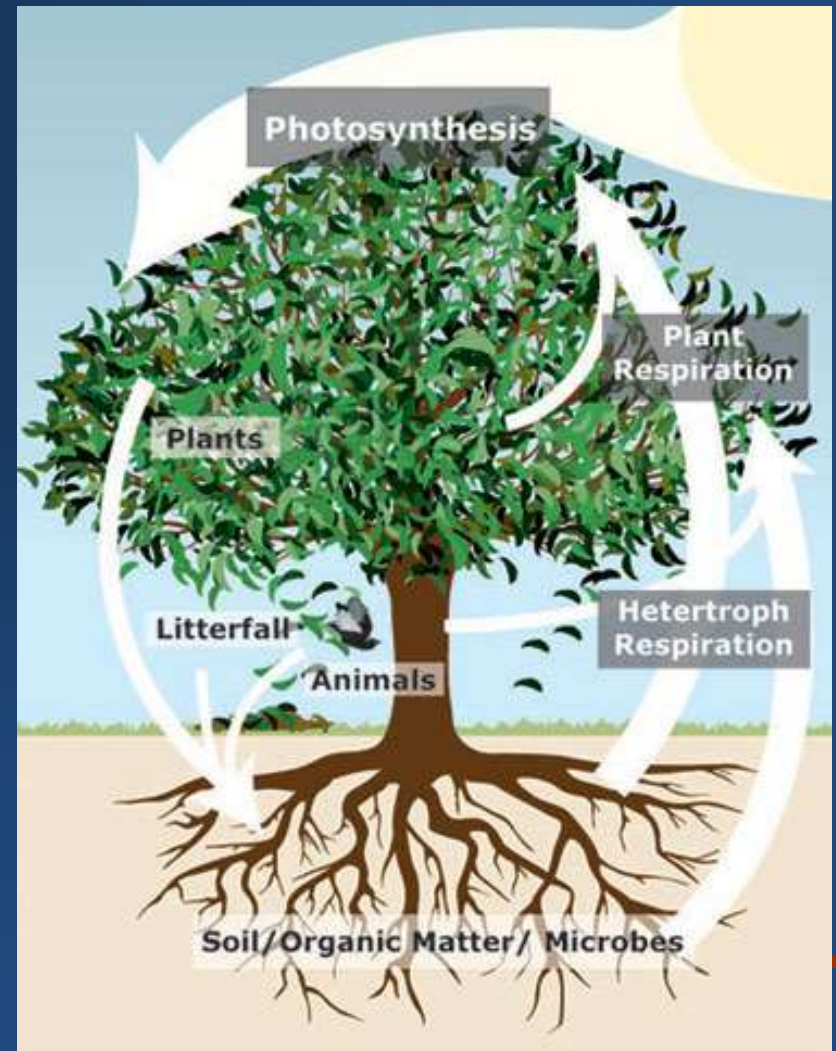
- Provide services essential to human wellbeing and survival, including:
 - Pollination
 - Water and Air Purification
 - Soil Formation
 - Balance Pest Species
 - Climate Stability



Learn More: [Millennium Ecosystem Assessment](#)

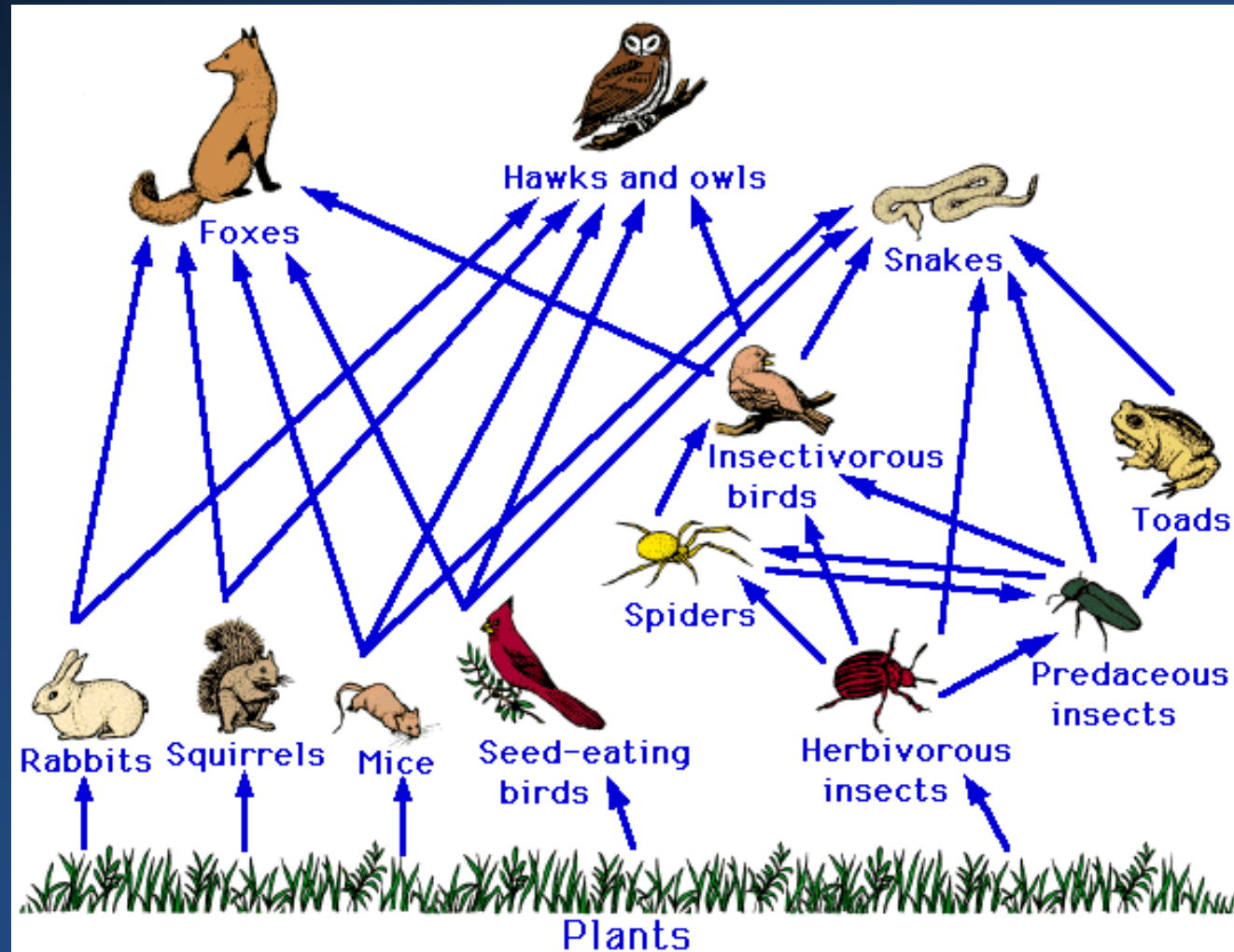
Plants Have Many Functions

- Protect soil from erosion
- Help cycle nutrients
- Help cycle water
- Support soil microbes



Most Important Function: Foundation of Food Webs

Plants capture and convert the **sun's energy** into a form that can be consumed by other organisms



Within Ecosystems, All Plants Are Not Equal

- Most herbivorous insects have adapted to feed on certain plants
- Plants with which they share an evolutionary history
- Plants native to the same region

Luna moth caterpillars
love sweet gum



Monarchs

- Caterpillars can only survive on species of *Asclepias*
 - Milkweed
 - Butterflyweed
- 15 species of *Asclepias* native to NC



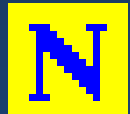
Southeastern Blueberry Bee

- Native pollinator
- Solitary, ground nesting
- Forages primarily on wild blueberries, *Vaccinium* species
- Active only during blueberry bloom season
- 17 species of *Vaccinium* native to NC!



What is a native plant?

From an NC nursery:



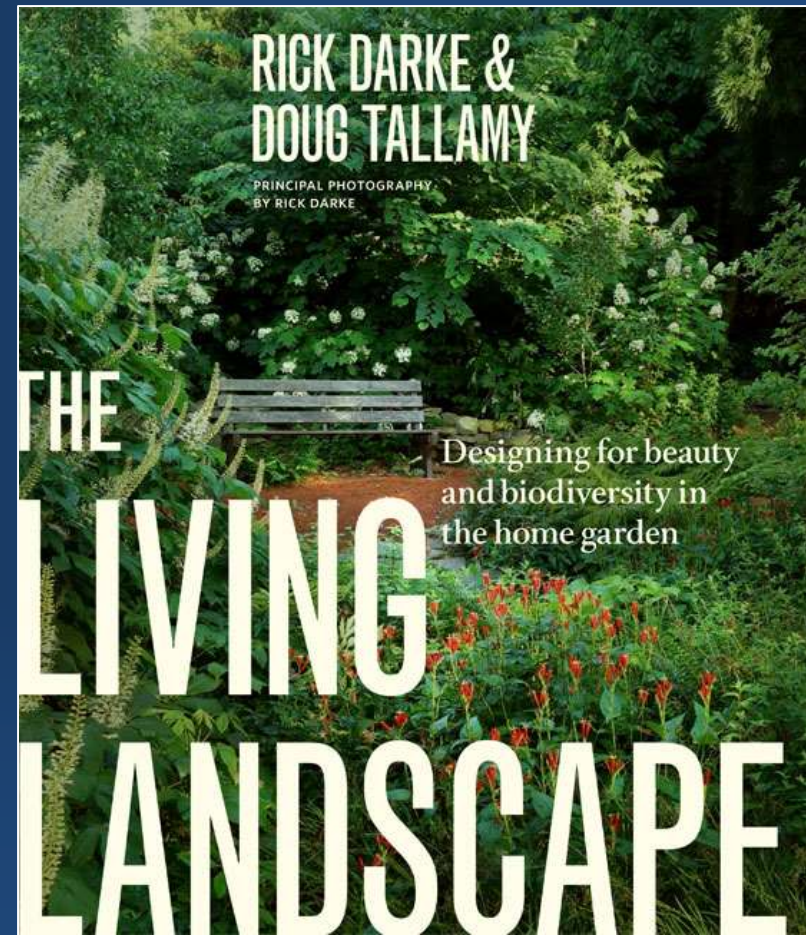
Indicates plants that are native to North America. We use the term "native" to refer to plants which evolved in North America, whether they are indigenous to the southeast or not.

Defining Native

“A plant or animal that has evolved in

- a **given place**
- over a **period of time**
- sufficient to develop **complex and essential relationships**
- with the **physical environment** and **other organisms**

in a given **ecological community**”



Given Place

- Native is meaningless without location!
- **Think ecoregion, not political boundaries**
- **Greatest benefit:** choose plants from local ecoregion



Ecoregions of North America
Level III: Piedmont

Period of Time

- 1000's of years
- Does not include plants recently introduced from other regions that have naturalized or become invasive
- Wild doesn't mean native!

Naturalized species, such as daylilies, persist after cultivation. Others are **invasive species**, such as Japanese honeysuckle



Daylily,
Hemerocallis fulva



Japanese Honeysuckle,
Lonicera japonica

Complex and Essential Relationships



Native Plants

- Evolved with native insects
- Feeding is tolerated
- Most native insects feed on very narrow range of species
- Feed for part of life cycle – usually 2-4 weeks



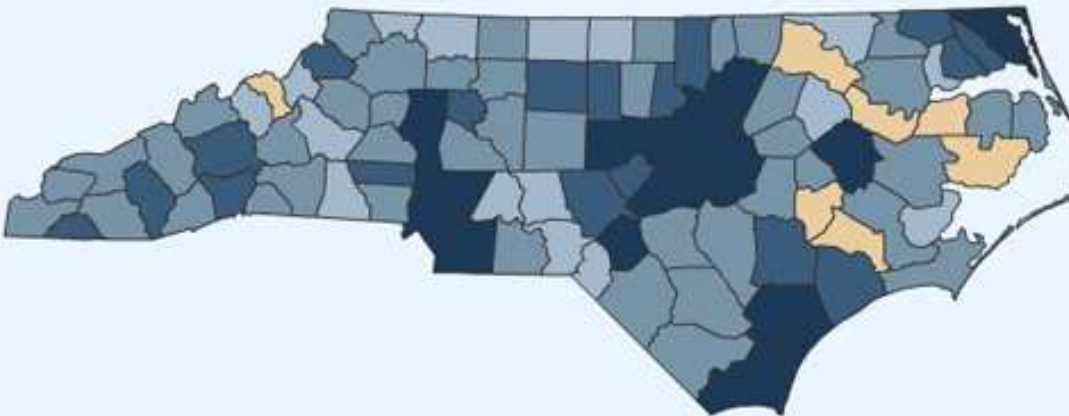
Polyphemus moth
caterpillars feed for a few
weeks in late summer

TREND: Natural areas replaced by managed landscapes



POPULATION CHANGE BY COUNTY: 2000-2010

LOSS 0-5% 5-15% 15-25% 25% +



United States
Census
Bureau



Managed Landscapes

- Often dominated by non-native plants
 - Turf
 - Exotic trees, shrubs, flowers
 - **Focus on “pest free”**
- Do not sustain ecosystems they replaced



A New Paradigm

- Select plants for:
 - Appearance
 - Performance
 - Adaptation to site conditions
- **PLUS** ability to sustain native species
 - Support ecosystem services
 - Unique to native plants



More Natives, Not All Native Every Site

Native doesn't mean:

- Adapted to all landscapes/sites
- Well behaved
- Long lived
- Easy care or low maintenance – especially if planted in the wrong place

There are very few small,
evergreen shrubs native to NC



More Natives, Not All Natives

- Some natives not adapted to highly urban environment



Gloomy
Scale



Parking lots are a graveyard
for red maple

Being Native Doesn't Make a Plant Great for Landscaping!

Things to consider:

- Spreading tendencies
- **Longevity**
 - Some species short lived - often self seed
 - Rely on disturbance to sustain populations
 - May disappear over time OR become a nuisance
 - May require periodic “editing”



Golden Alexanders
Zizia aurea

Weedy versus Invasive

- **Invasive** refers to non-native plants capable of harming ecosystems
- **Weedy** – spread vigorously in garden/landscape setting
 - By seed
 - By roots – rhizomatous



Salvia lyrata, lyre-leaf sage, self seeds prolifically!

Others natives are too finicky



Lady Lupine,
Lupinus villosus



Pitcher Plant,
Sarracenia flava

What about cultivars?



Purple Coneflower,
Echinacea purpurea



Echinacea 'Razzmatazz'

“Nativars”

- Cultivated varieties of native species
- Selected for unique/desirable feature
- Propagated by cuttings, division to maintain genetic integrity = clones



Cercis canadensis ‘Merlot’
Purple leaf form of redbud

Key Question: How different is it?

- Flowering time
- Flower shape
- Flower color
- Foliage color
- Topic of current research
 - Mt. Cuba Center



Key to Success

Choose plants adapted to site

- Sun/Shade
- Moisture/Drainage
- Soil pH and nutrient levels
- Space to grow

Swamp Rose Mallow
Hibiscus moscheutos
Needs moist soil!



Getting the Most Benefit

Help plants thrive:

- **Prepare the soil**
 - Alleviate compaction
 - Incorporate organic matter
- **Water during establishment**
 - First season
- **Mulch!**



Getting the Most Benefit

Ecological Design

- Majority of plants natives to local ecoregion
- Diversity of species and height ranges
 - Less lawn - More trees, shrubs, and flowers
- Year round food supply
 - Flowers, fruits, seeds, leaves



Not diverse!



Very diverse!

Getting the most benefit

THINK LAYERS!

More layers
provide habitat
for more species



Canopy

Understory

Shrub

Flowers/Groundcover

A Few Great Natives for Piedmont Landscapes

- **Serve ecological function:**
 - Support other species
- **Serve landscape function:**
 - Attractive and adaptable
 - Not overly aggressive or finicky
- **Can be nursery produced**
 - Some only available from specialty nurseries



Think Layers: Canopy Trees

- The top layer, 40'-80'+ tall
- Provide shade
- Protect soil
- Food source for many species (leaves, nuts/fruits, nectar/pollen)
- Large, unbroken areas of woodland needed



Foraging Hubs

- Trees are the most important source of caterpillars
- Most caterpillar species feed on very narrow range of species
- Feed for part of life cycle – usually 2-4 weeks



Rosy maple moth caterpillars
feed for a few weeks in late
summer

Caterpillar Hunters

- Nearly all terrestrial birds rear their young on insects, not seeds or berries
- Chickadees are caterpillar specialists
 - Requires 6,000-10,000 caterpillars to fledge a single nest!
- **Caterpillars rarely threaten tree health!**



Getting the Most Benefit

Add trees to connect fragmented areas

- Work with neighbors to:
 - Protect existing natural areas
 - Connect natural areas
- Create larger area for habitat
- Bridges existing areas to create a corridor



Many Great Native Trees

Readily Available:

- **River Birch,**
Betula nigra
- **Red Maple,**
Acer rubrum
- **Black Gum,**
Nyssa sylvatica
- **Southern Magnolia,**
Magnolia grandiflora



Oaks

- Support 100's of species
 - Acorns
 - Leaves
 - Habitat
- The best shade trees
- Most are very long lived
- Over 30 species native to NC!



Oaks in Landscapes

Most commonly planted:

- **Willow oak,**
Quercus phellos
- **Pin oak,**
Quercus palustris

Willow Oak



Pin Oak

More Oaks

Commercially
Available:

- **Shumard Oak**, *Quercus shumardii*
- **White Oak**, *Quercus alba*
- **Swamp White Oak**, *Quercus bicolor*
- **Overcup Oak**, *Quercus lyrata*
- **Red Oak**, *Quercus rubra*
- **Scarlet Oak**, *Quercus coccinea*



More Great Native Trees

Less Readily Available:

- **Persimmon**, *Diospyrus virginiana*
- **Hickory**, *Carya* species
- **American Beech**, *Fagus grandifolia*

NC Forest Service,
Tree Seedling Store -

<http://nc-forestry.stores.yahoo.net>



American beech in winter

Understory Trees and Shrubs

- **Middle layer**
- Often missing in managed landscapes
- **Prime nesting height** for most birds, 5'-15' above ground
- Many have attractive flowers, produce fruits/berries



Middle/understory layer missing in many modern landscapes

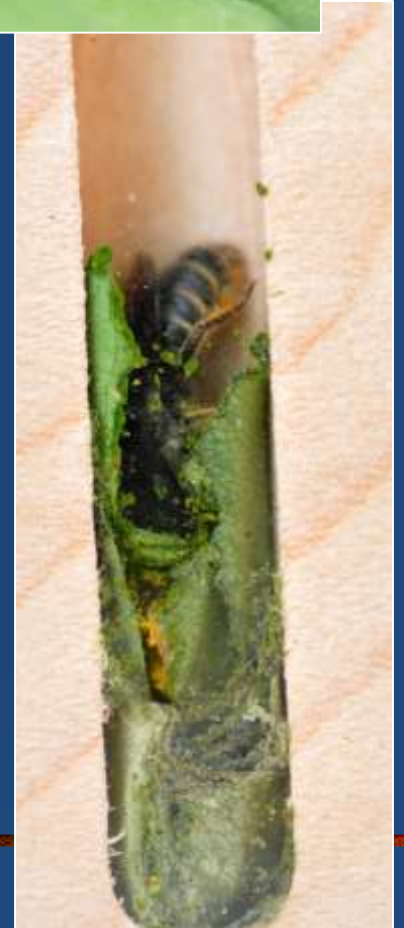
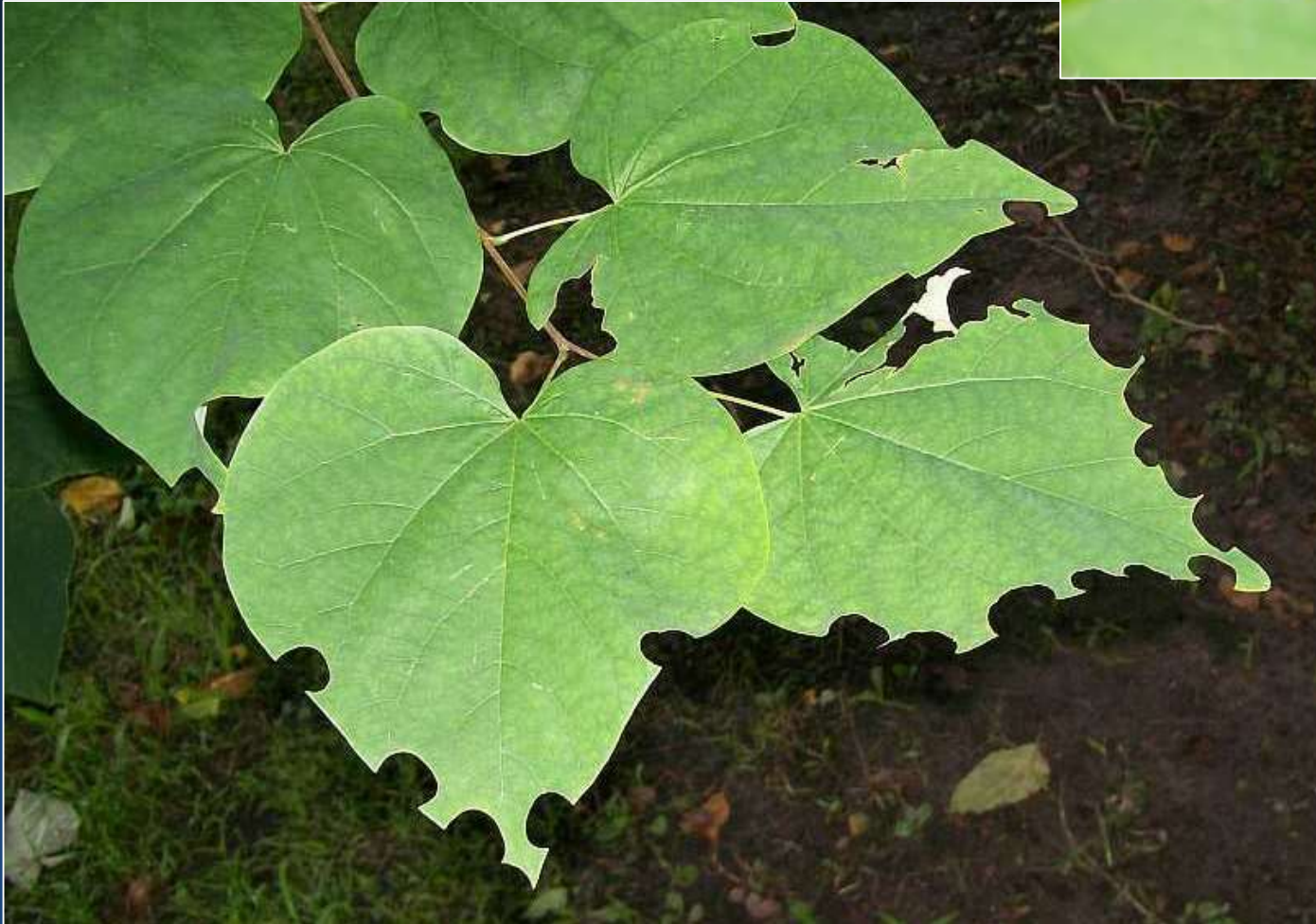
Redbud

Cercis canadensis

- Small deciduous tree
- Blooms early spring before leaves come out
- Lives ~ 20 yrs.
- Sun – pt. shade, well drained soil
- Protect from deer when young



Leafcutter Bees



Redbud Cultivars

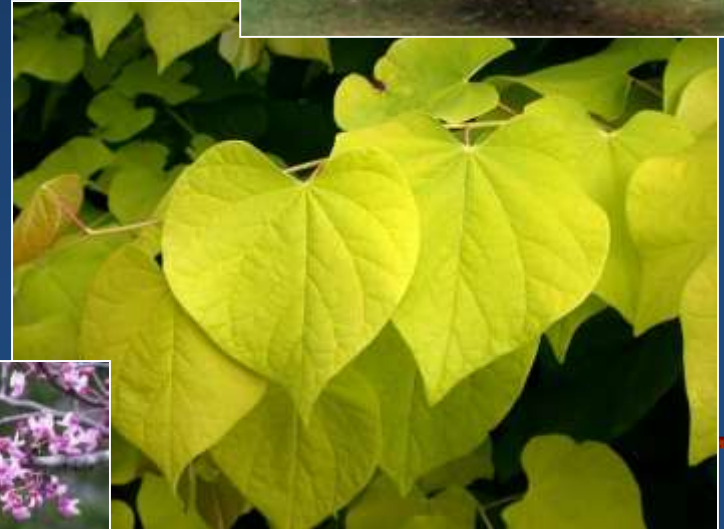


'Royal White'

'Forest Pansy',
'Merlot',
'Burgundy Hearts'



'Hearts
of Gold',
'Rising
Sun'



Dogwood

Cornus florida

- 15' – 30' tall
- Moist, well drained soil
- Best in afternoon shade
- Spring blooms, excellent fall color
- Many cultivars



Fall fruits relished by birds



Serviceberry

Amelanchier arborea

- Small tree – often multi-stemmed
- Sun to part shade, moist soil
- White flowers in spring
- Sweet berries ripen late May
- Rust can be a problem on fruit and leaves if red cedar trees are nearby





Amelanchier blooms in early April

Cedar Quince Rust on Serviceberry



Sweet Bay Magnolia

Magnolia virginiana

- Smaller cousin of Southern Magnolia
- Grows 20'-30' tall, often with multiple trunks
- Sun to part shade,
- Moist or well-drained soil – tolerates flooding
- Fragrant flowers, spring-early summer
- Deciduous



Upright habit;
Fall seeds great
for birds



©2009 Jeffrey Pip



'Mt. Airy' Fothergilla

Fothergilla major

- 4'-5'x 4'-5'
- Sun to part shade
- Moist or well drained soil, acidic
- Honey scented spring blooms
- Deer resistant



Fothergilla fall color



Inkberry

Ilex glabra

- Coastal plain, eastern piedmont
- 4'-5' x 3'-4'
- Evergreen
- Tolerates moist soil
- Bees attracted to blossoms



Coral Honeysuckle

- *Lonicera sempervirens*
- Coastal plain, piedmont, foothills
- Semi-evergreen vine
- Spring blooming – often reblooms
- Hummingbirds!
- Sun, most soil types
- Climbs 10'+



Perennials

- Ground layer
- Critically important nectar and pollen source for pollinators and beneficial insects
- **Most benefit:**
 - Plan for something to be in bloom spring-fall
 - At least 3 different types in bloom each season



Blossoms with many small flowers clustered together are the richest nectar plants

Getting the Most Benefit

- Plant flowers in groups
- Allows birds and pollinators to feed with less movement
- Also aesthetically pleasing



Black-eyed Susan,
Rudbeckia fulgida

Green and Gold

Chrysogonum virginianum

- Light to part shade, moist or well drained soil
- 1' x 2'
- Evergreen foliage
- Spring flowers
- Self seeds
- Var. *australe* is stoloniferous, lower growing - groundcover



Eastern Columbine

Aquilegia canadensis

- Blooms March - May
- Part sun or shade, well drained soil
- 12" – 24" tall in bloom
- Attracts butterflies and hummingbirds
- Will naturalize in the garden by self seeding
- Deer resistant



Bluestar

Amsonia tabernaemontana

- Tough, long lived clumping perennial
- Pale blue flowers



■ Deep Yellow Bluestar

False Indigo

- *Baptisia* - hybrids and species
- 3' - 4' x 2' - 3'
- Sun to light shade
- Drought tolerant
- Very long lived, clump forming
- Several species native to SE US
- Deer resistant



Baptisia australis

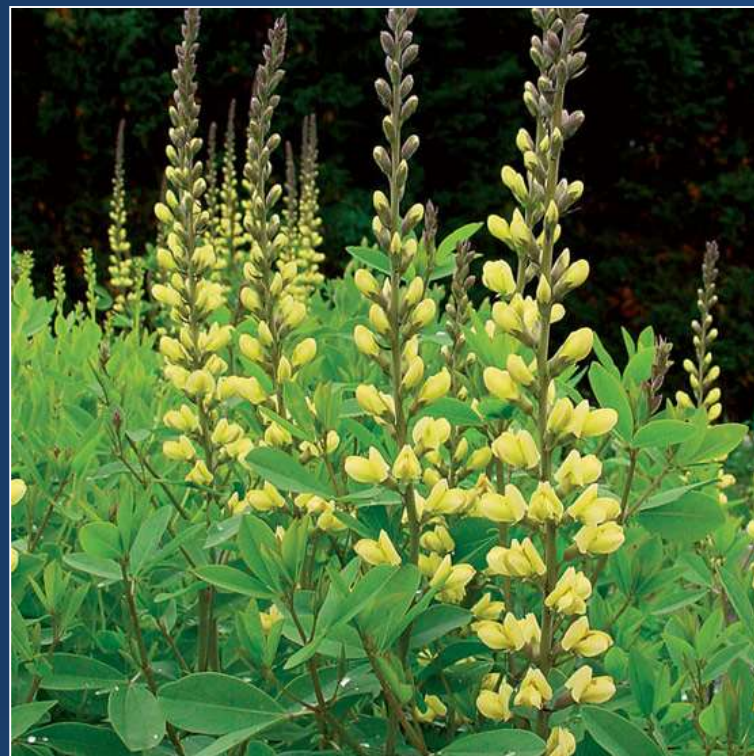
Baptisia alba



‘Purple Smoke’



‘Carolina Moonlight’



Coreopsis, Tickseed

- Several species native to NC
- Sun lovers
- Threadleaf Coreopsis
 - *C. verticillata*
 - Long lived
 - Summer blooming
 - Drought tolerant
 - 'Zagreb' – 2' x 2'



Butterfly Weed

Asclepias tuberosa

- Native statewide
- Orange flowers summer – attract many pollinators
- Sun to part shade
- Well drained soil
- Very drought tolerant
- Late to emerge in spring
- Deer resistant





**Support Monarchs –
Plant Asclepias!**



Swamp Milkweed

Asclepias incarnata

- 3' tall and wide
- Summer flowers
- Sun to part shade
- Moisture tolerant
- Monarch larval host
- Attracts many pollinators

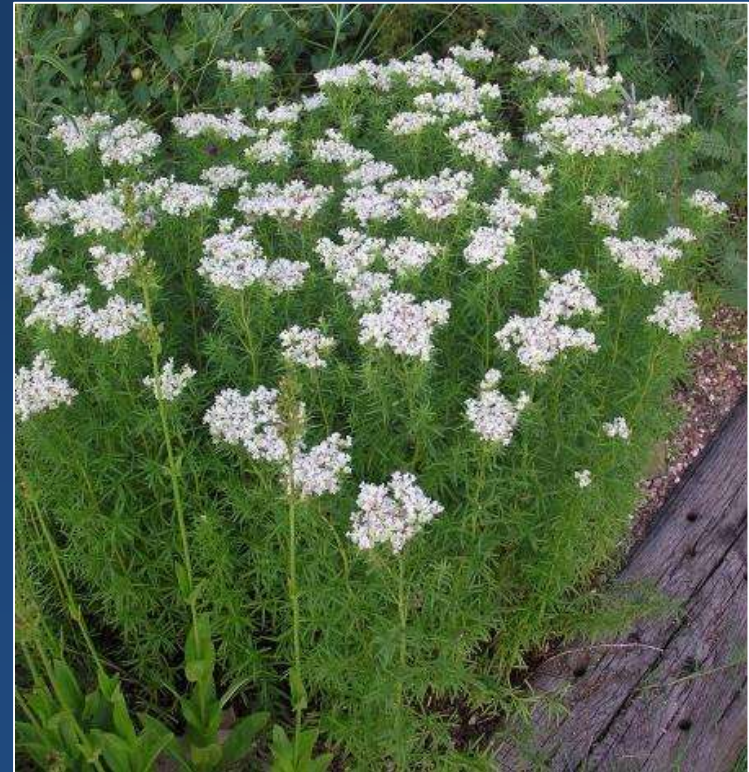


Mountain Mints

Pycnanthemum species

- 12+ species
- Bloom mid-late summer
- Sun to light shade
- Moist soil
- 3' tall and wide
- The best pollinator plants!
- Deer resistant

*Pycnanthemum
tenuifolium*



Joe Pye Weed

- Sun – pt. shade
- Wet to moist soil
- *Eutrochium dubium*
 - 4'-5' tall x 3'-4' wide
 - More common coast
- *E. fistulosum*
 - 5'-8' x 3'-4'
 - More common piedmont
- *E. purpureum* and *E. maculatum* in Mountains
- Deer resistant



Goldenrods

Solidago species

Several native species –
some too vigorous for
landscapes

- *Solidago rugosa*
- Native throughout NC
- cultivar 'Fireworks'
- Grows 3'-4' high and wide
- Sun to part shade, well
drained to wet soils
- Blooms late summer -
nectar for butterflies and
many other pollinators



Asters

- Many are native
- Most need sun
- Pollinators!
- **Blue Wood Aster,** *Symphyotrichum cordifolium*
 - Shade tolerant!
 - Moist-dry soil
 - 2-3' tall
 - Native statewide



Switch Grass

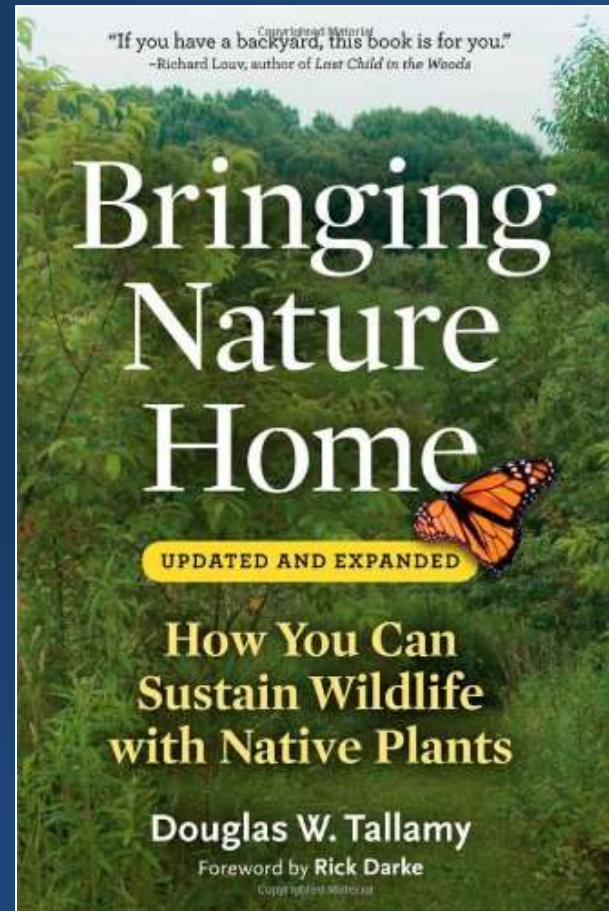
Panicum virgatum

- Native throughout NC
- Several cultivars, 3' - 8' tall
- Moist or dry soils
- Sun to light shade
- Stands up well through winter, birds enjoy seeds
- Cut back by late Feb.
- Deer resistant



“A plant that has
fed nothing has
not done its job”

- D. Tallamy,
*Bringing Nature
Home*



Learn More: **Going Native Website**

<http://www.ncsu.edu/goingnative/>

Searchable plant database!

NC STATE UNIVERSITY



GOING NATIVE

URBAN LANDSCAPING FOR WILDLIFE WITH NATIVE PLANTS

HOME | NATIVE PLANTS ATTRACTIVE TO WILDLIFE | WHERE TO GET NATIVE PLANTS | INVASIVE, EXOTIC PLANTS OF THE SOUTHEAST | MY PLANT LIST



Home >

WHY GO NATIVE

HOW TO GO NATIVE

CREATE YOUR OWN NATIVE LANDSCAPE

Going Native: Urban Landscaping for Wildlife with Native Plants

You can go native!...with native plants in your landscape.

- See why landscaping with native plants is better for wildlife and for the environment.
- Find out about the problems caused by invasive, exotic plants. Odds are you have invasive exotics in your own backyard!
- Discover the native plants you can use as alternatives to exotic plants. We can tell you where you can

Learn More

Extension Gardener Handbook

- Chapters cover many topics
 - Soils, Insects, Landscape Design, Vegetables, Flowers, etc.
- **Chapter 12 is Native Plants!**

NC State Extension



Cardinal flower -
Lobelia cardinalis

Extension Plants Database:

Can help you select native and non-invasive
non-native species for your yard

<http://plants.ces.ncsu.edu/>


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Annuals	Poisonous Plants
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Edible Plants	Shrubs
Ferns	Spring Bulbs
Groundcover	Summer Bulbs
Herbs	Trees
Native Plants	Vines
Ornamental Grass	Water Garden
Perennial Bulbs	Wildflowers
Perennials	All Plants



Plant Profiles:

- Height
- Hardiness
- Soil
- Exposure
- Description
- Images
- More!

[Plants](#) > [Native Plants](#) > *Hydrangea quercifolia*

Hydrangea quercifolia

This plant has poison characteristics. See below.

Common Name(s):

Oakleaf hydrangea

Cultivar(s):

Snow Queen , Snowflake , Harmony , Pee Wee, Sykes Dwarf, Alice, Little Honey (golden foliage), Munchkin (semi-dwarf), Ruby Slippers (semi-dwarf)

Categories:

[Native Plants](#), [Poisonous Plants](#), [Shrubs](#)

Comment:

Bold leathery leaves; spread of 8 ft.; seeds eaten by birds; mulch to keep root system cool; exfoliating bark on mature plants; wine, orange, and mahogany fall foliage; coarse texture; drought tolerant; native to southeastern US; rapid growth rate

Description:

Deciduous shrubs; leaves opposite, simple, stalked, toothed and sometimes lobed; flowers in terminal, round or umbrella-shaped clusters, white, pink, or blue, 4- 5-parted, the sterile flowers (around the margin or the entire cluster) are much enlarged.

Height:

4-8 ft.

Foliage:

Opposite, simple, bold leathery leaves; 3-8 in. long; wine, orange, mahogany fall color

Flower:

4 -12 in. erect panicles of creamy white flowers in summer; fades to pink, then tan; fragrant; good for drying

Zones:

5 to 9

Habit:

Deciduous

Site:

Sun to partial shade; prefers moist, well-drained soil but tolerates damp soil

Texture:

Coarse

Form:

Upright, irregular, rounded, multi-stemmed shrub with limited branching; stoloniferous; forms colonies

Exposure:

Sun to partial shade; moist, well drained soil

Fruit:



H. quercifolia 'Snowflake'

Photo by Kingsize Garden, [CC BY-NC-SA - 2.0](#)



H. quercifolia 'Snow Queen'

Photo by Henry10, [CC BY-NC-ND - 2.0](#)

Pollinator Conservation

<http://www.protectpollinators.org>



Growing Small Farms

Chatham Extension Center News Farmer Resources Web Resources Workshops What's New

Whatever lofty things you might accomplish today, you will do them only because you first ate something that grew out of dirt.
- Barbara Kingsolver

Print Content Only 

Pollinator Conservation Guide

Photos by [Debbie Roos](#)[®], Agricultural Extension Agent.

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Visit the Pollinator Paradise Garden in Pittsboro!

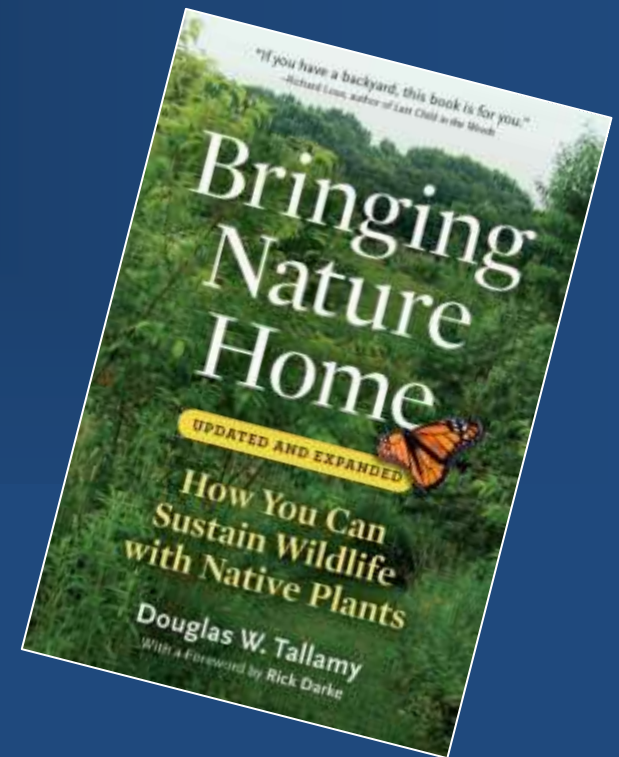
Learn More!

- **NC Botanical Gardens,** Chapel Hill
 - <http://ncbg.unc.edu>
- **Duke Gardens,** Blomquist Garden of Native Plants
 - <http://gardens.duke.edu>
- **NC Native Plant Society**
 - <http://www.ncwildflower.org>



Great Books to Learn More!

- ***Native Plants of the Southeast***
 - L. Mellichamp
- ***Best Native Plants for Southern Gardens***
 - G. Nelson
- ***Gardening with Native Plants of the Southeast***
 - S. Wasowski
- ***Bringing Nature Home***
 - D. Tallamy
- ***The Living Landscape***
 - D. Tallamy and R. Darke



Questions?

Learn more:

<http://go.ncsu.edu/natives>

