

Native Plants



Charlotte Glen,
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Extension Master Gardener Program,

NC STATE

EXTENSION



Review these slides and explore
additional resources:

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



Native Plants

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



Eastern Columbine,
Aquilegia canadensis

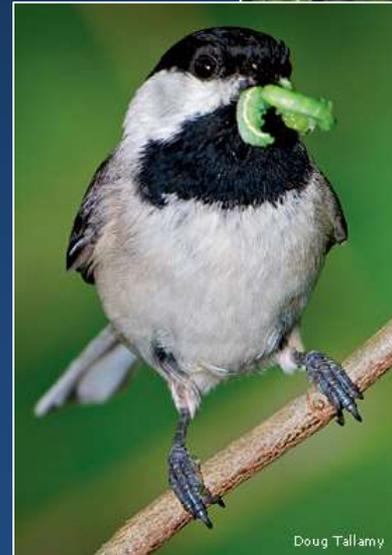
**Why should native plants
be part of residential
landscapes?**



Why Plant Natives?

Natives are needed to:

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



Healthy Ecosystems

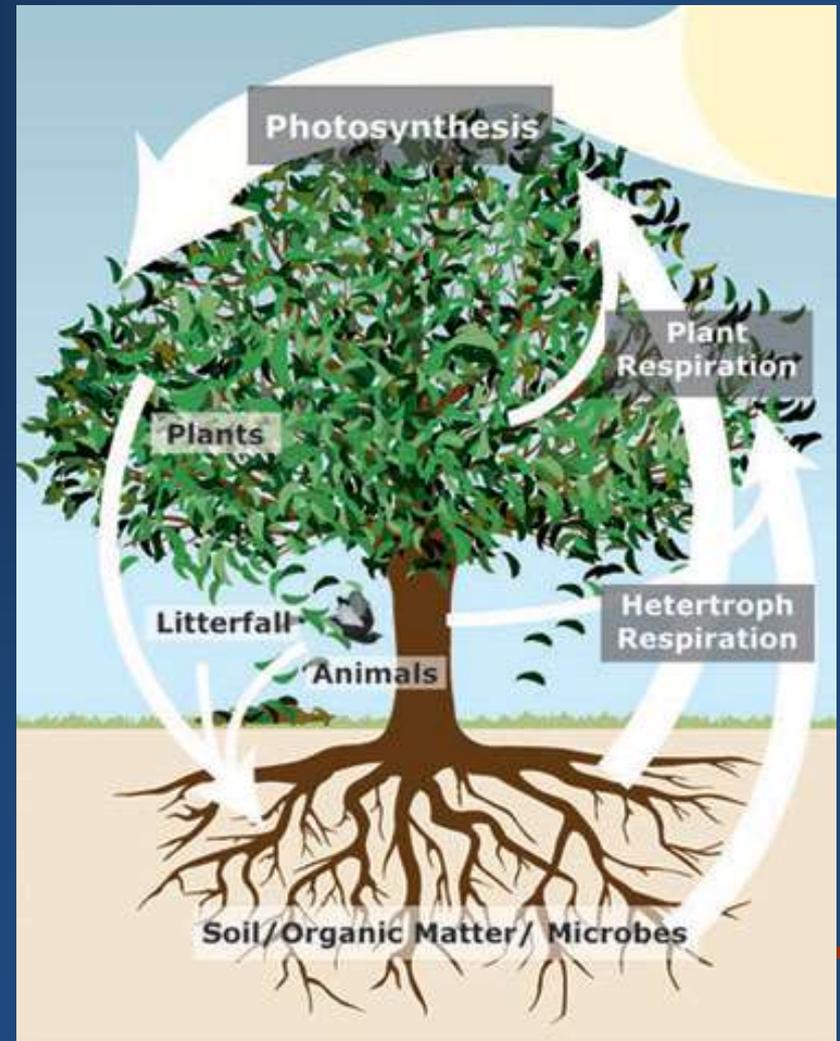
- Provide services essential to human wellbeing and survival, including:
 - Pollination
 - Water and Air Purification
 - Soil Formation
 - Balance Pest Species
 - Climate Stability



Learn More: [Millennium Ecosystem Assessment](#)

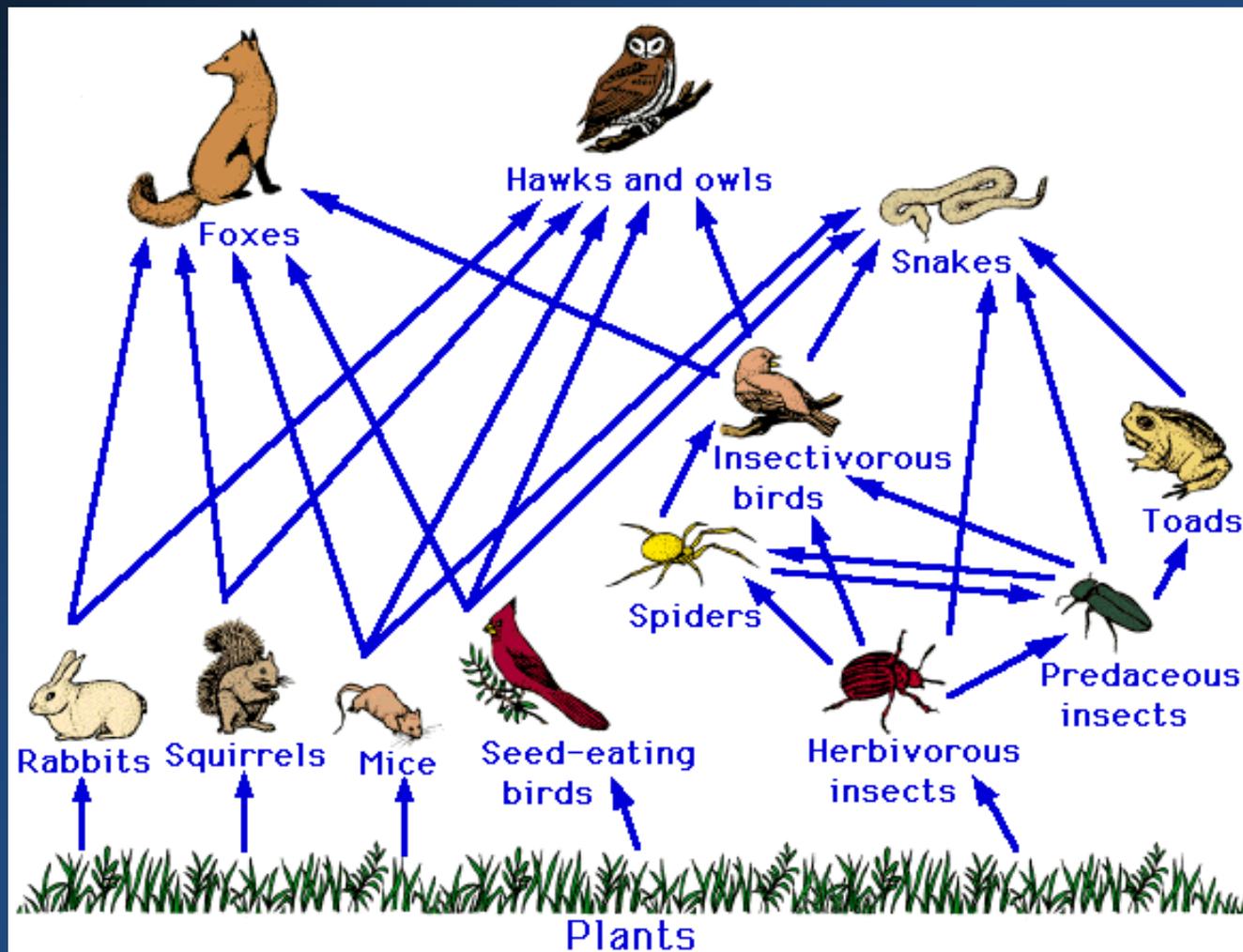
Plants Have Many Functions

- 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

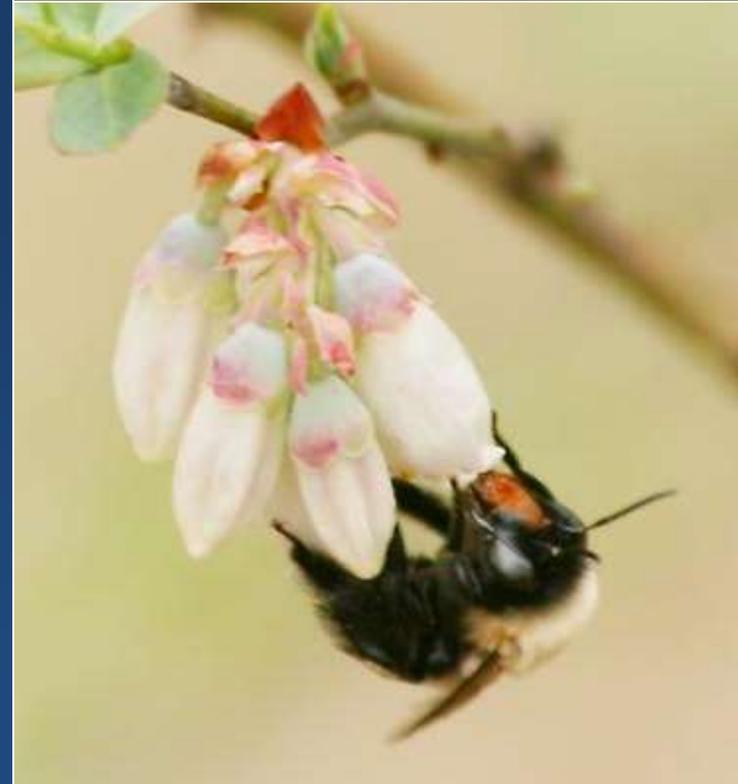
Monarchs

- 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 within 1 mile of nest
- Active only during blueberry bloom season
- 17 species of *Vaccinium* native to NC!



What is a native plant?

From an NC nursery:



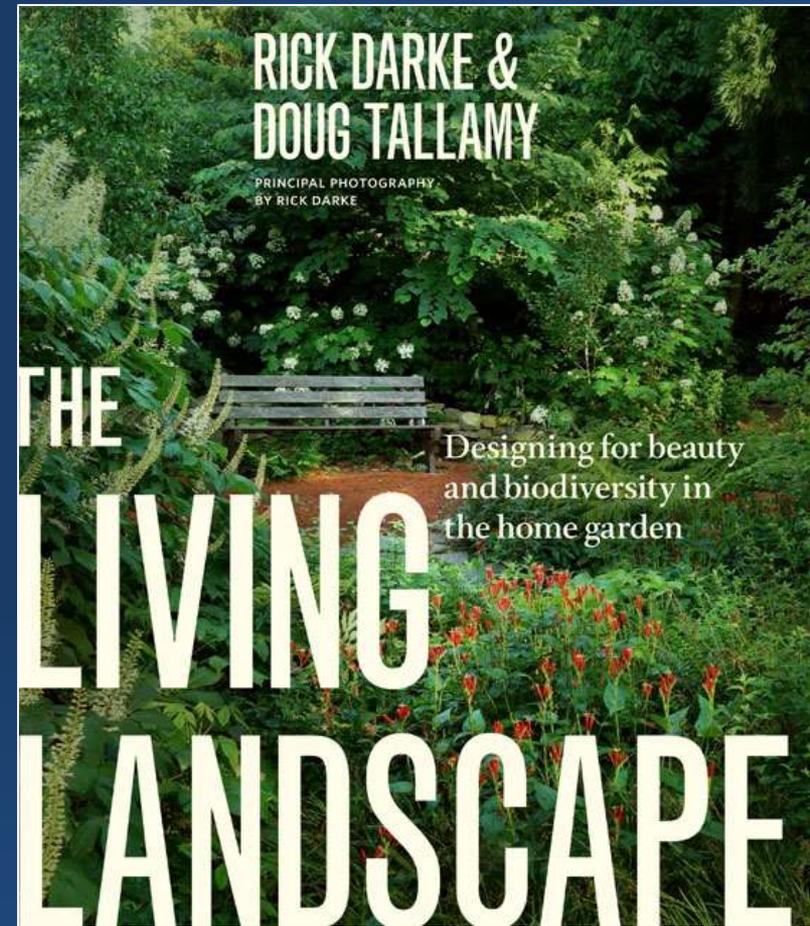
Indicates plants that are native to North America. We use the term "native" to refer to plants which evolved in North America, whether they are indigenous to the southeast or not.

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

Native Range

Consider native range of plants

- **Some very widespread**
 - All of NC; eastern US
 - Typically adaptable to wider range of conditions
- **Some very restricted**
 - May be adapted to specialized conditions

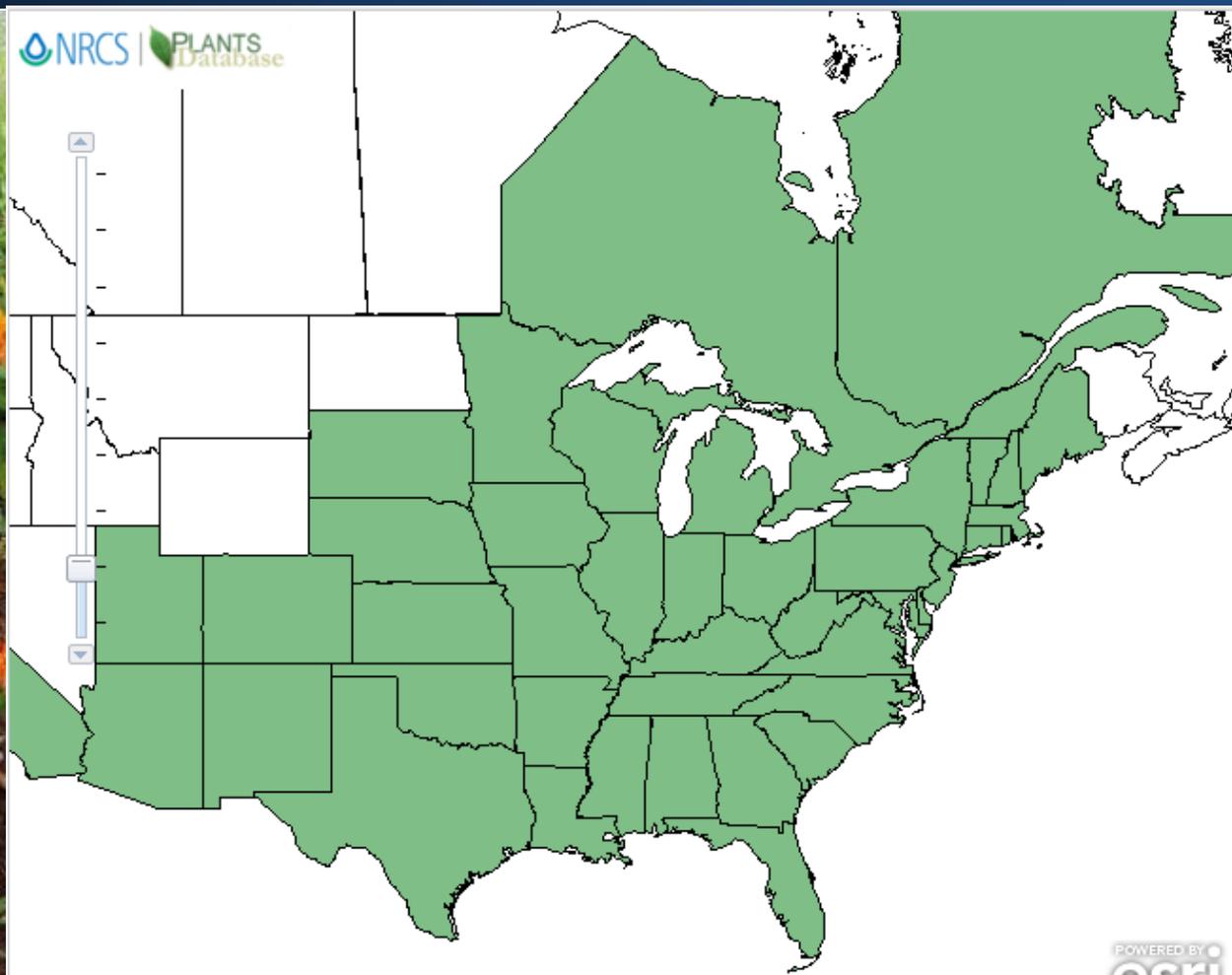


Best source for
native range:

**USDA PLANTS
Database**

Butterflyweed

Asclepias tuberosa



Venus Flytrap

Dionaea muscipula



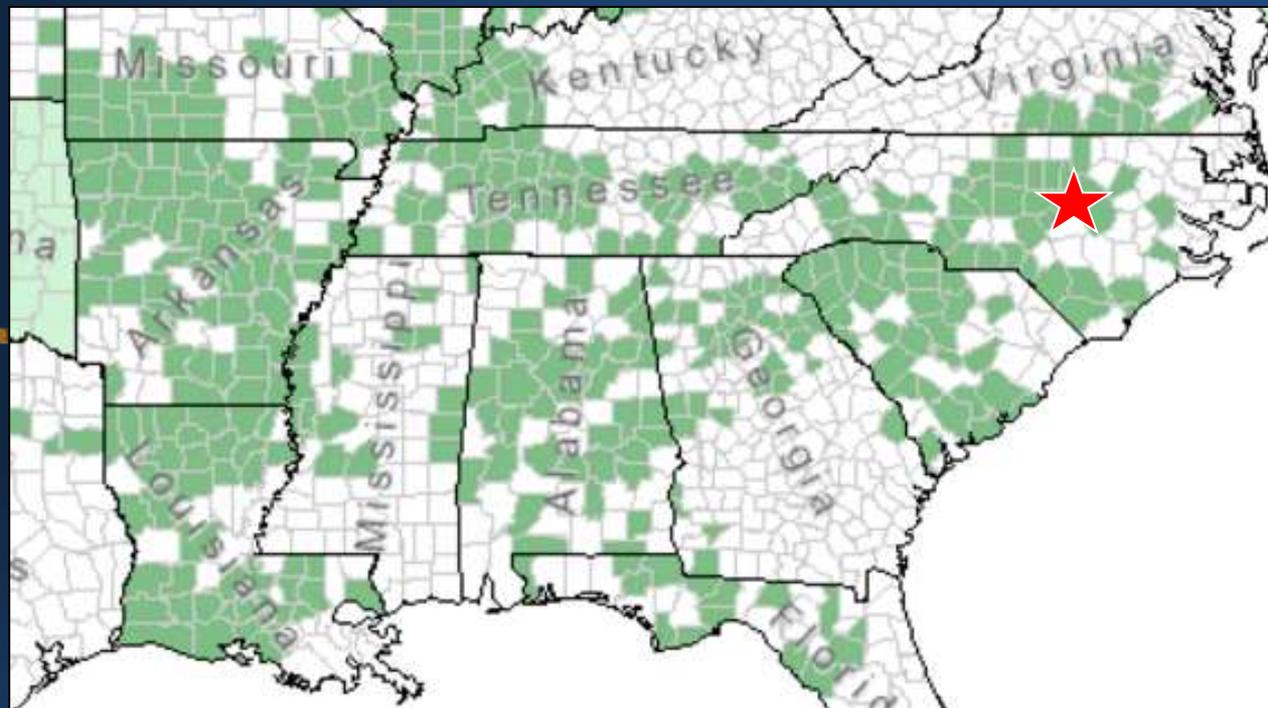
Congeners

- Plants in same genus
- For example:
 - *Amsonia tabernaemontana* →
 - *Amsonia hubrichtii* →
- Congeners from southeast US often support local pollinators and beneficial insects even if not native to this region



Native Range

Amsonia tabernaemontana



Amsonia hubrichtii



Best source for
native range: [USDA
PLANTS Database](#)

Which is best for your site?

Consider both:

- Geographical range
- Type of habitat
- *Amsonia tabernaemontana*
 - Moist woods, stream edges
 - Prefers moist soil, part shade
- *Amsonia hubrichtii*
 - Rocky outcrops, dry creek banks
 - More sun and drought tolerant



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

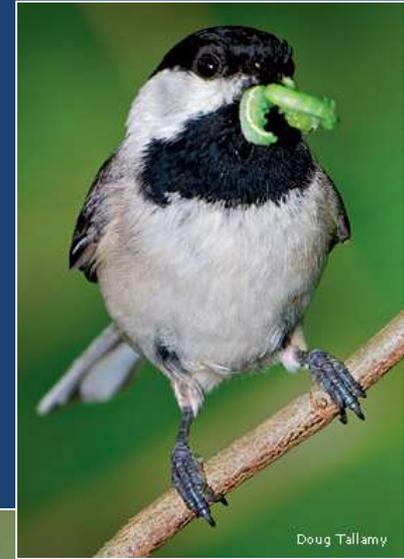
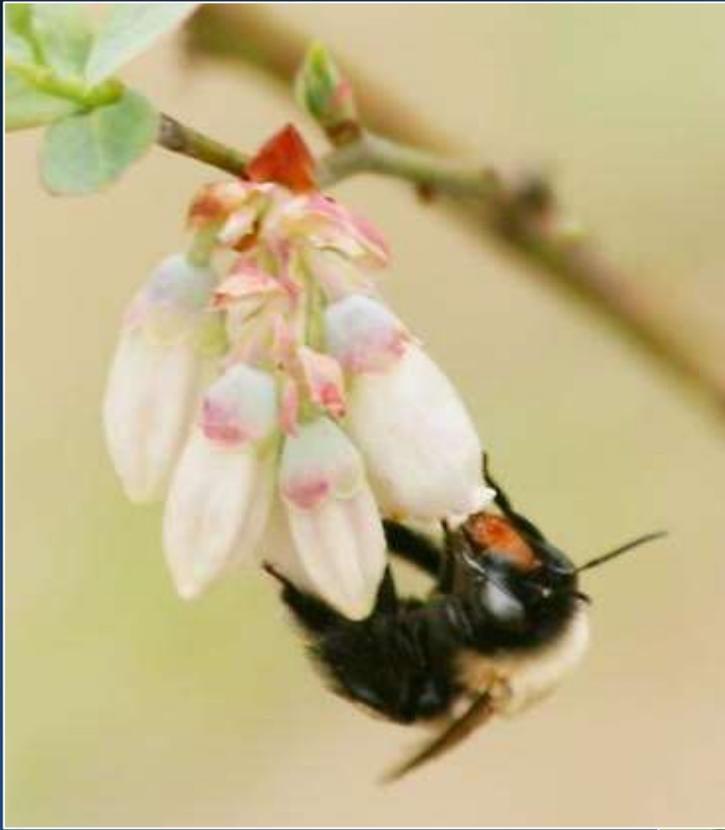


Daylily,
Hemerocallis fulva



Japanese Honeysuckle,
Lonicera japonica

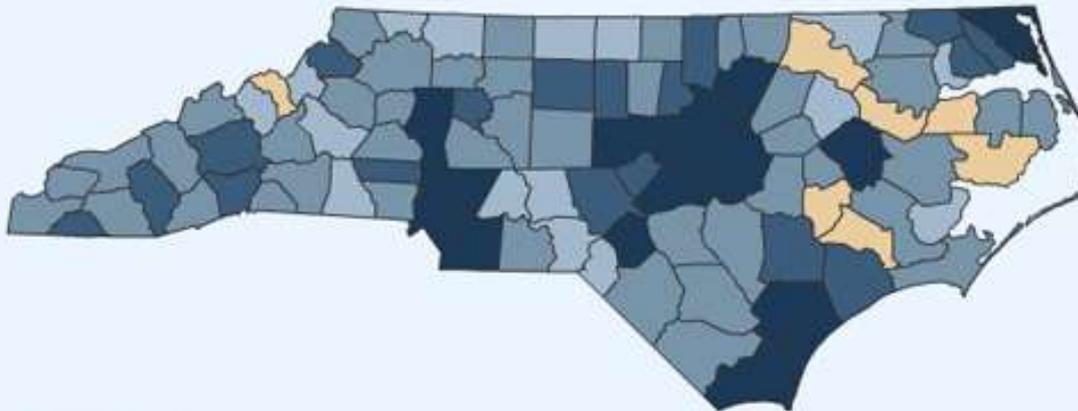
Complex and Essential Relationships



TREND: Natural areas replaced by managed landscapes



POPULATION CHANGE BY COUNTY: 2000-2010



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



Holly hybrids provide nectar and pollen for bees, and berries for birds

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

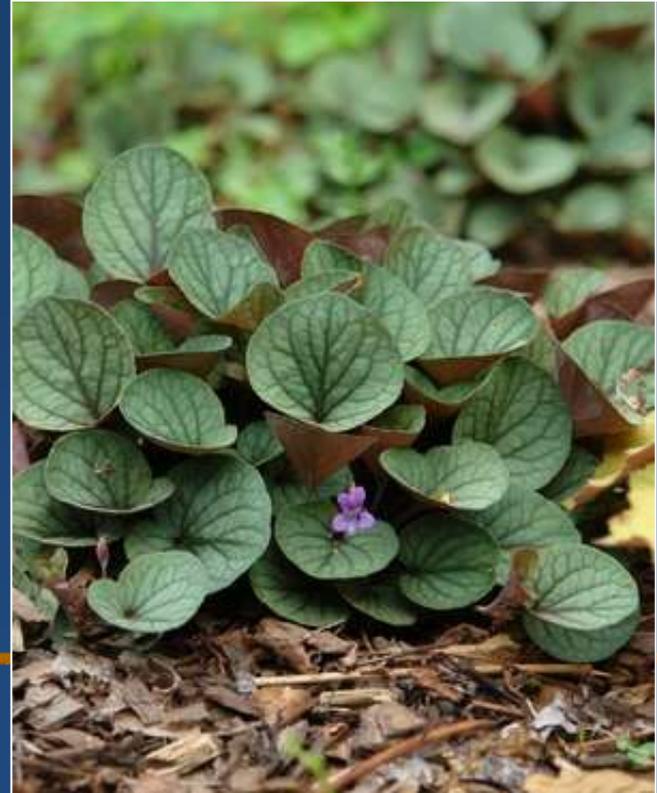


Salvia lyrata, lyre-leaf sage, self seeds prolifically!

Making the most of spreaders

- Spreaders that aren't too aggressive make great groundcovers
- Layer under and around taller plants – “living mulch”

Viola walteri
'Silver Gem'



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
 - Doug Tallamy and others

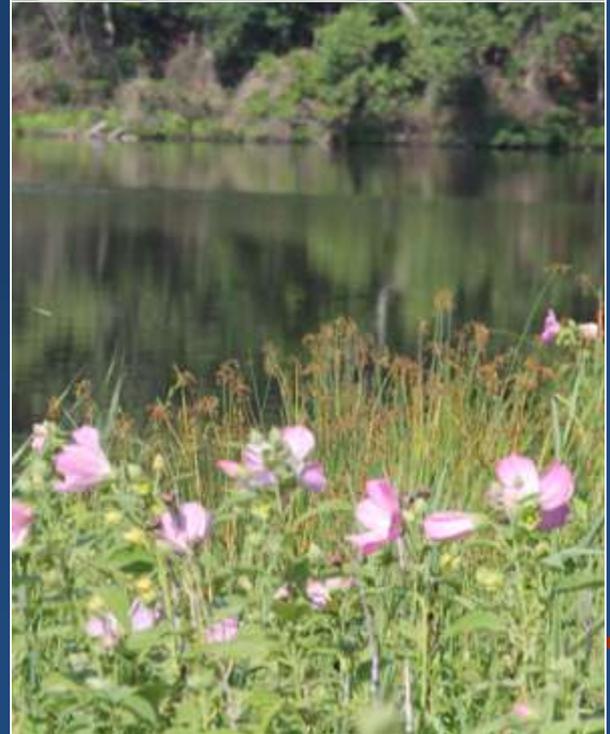


Key to Success

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

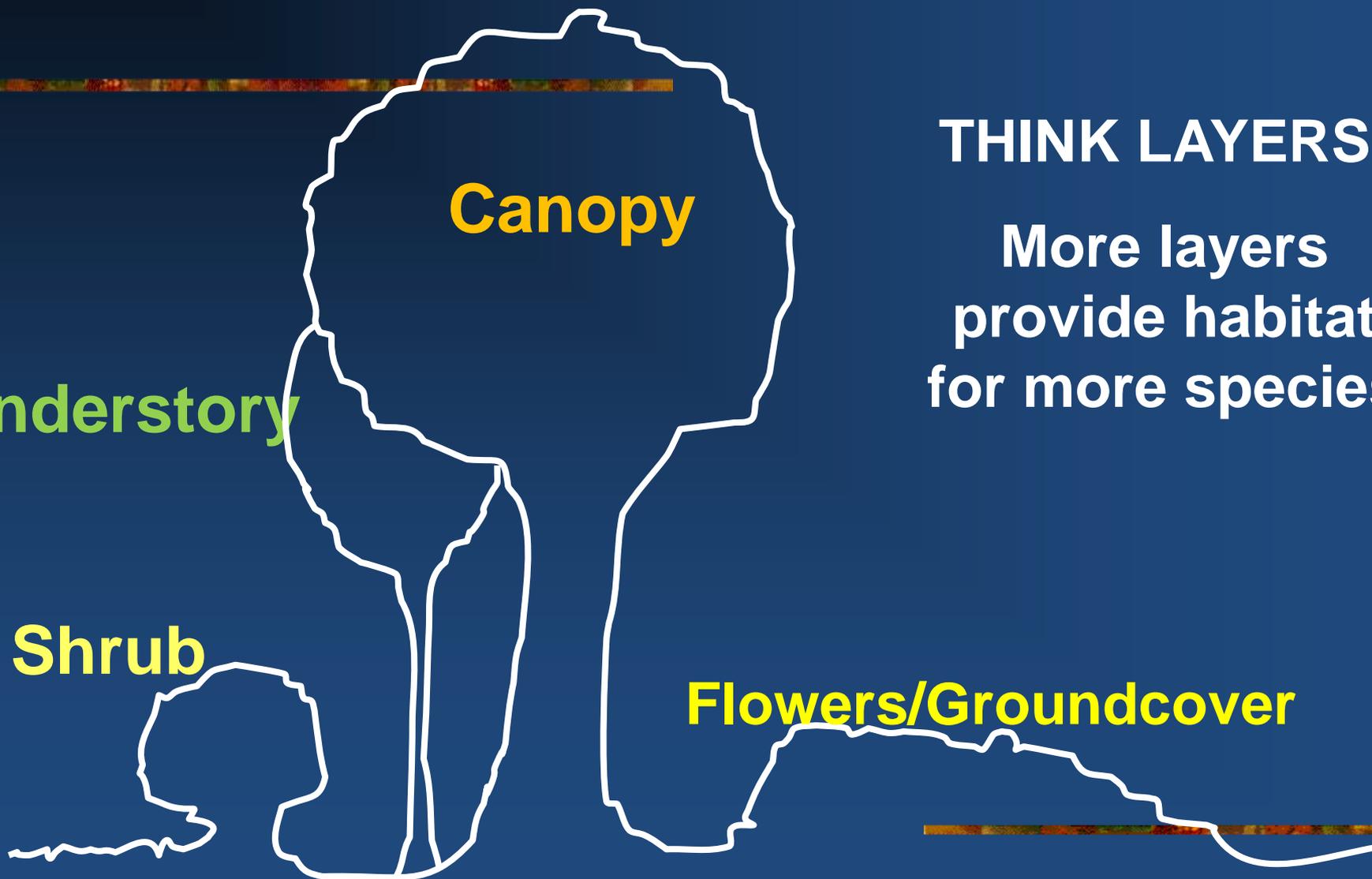


Very diverse!

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

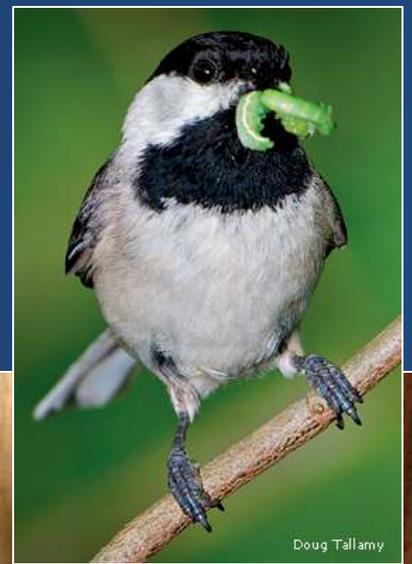
- Trees are the most important source of caterpillars
- Most caterpillar species feed on very narrow range of species
- Feed for part of life cycle – usually 2-4 weeks



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
- **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

Willow Oak

Most commonly planted:

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



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

- **Black Gum,**
Nyssa sylvatica
- **Persimmon,**
Diospyrus virginiana
- **Hickory,**
Carya species
- **American Beech,**
Fagus grandifolia

NC Forest Service,
Tree Seedling Store -

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



American Beech

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

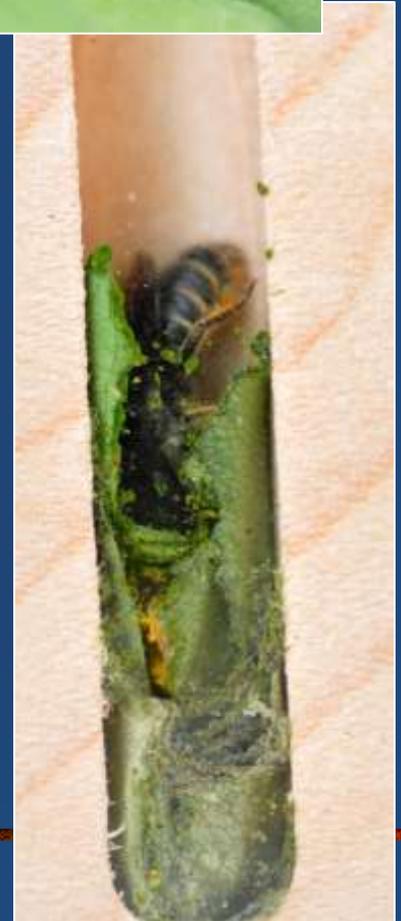
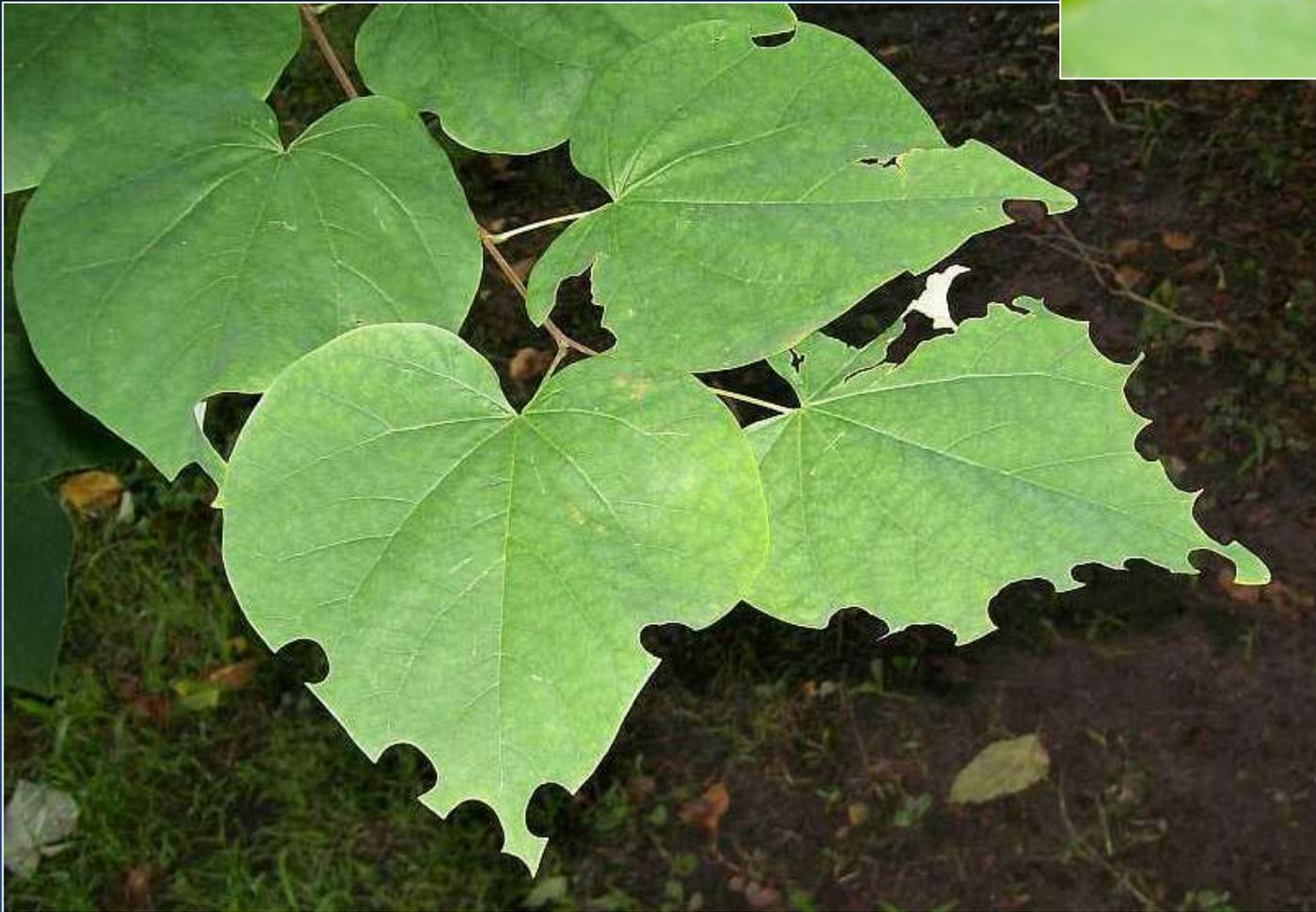
Redbud

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



Spot Anthracnose

- Spots on flowers and leaves cause distortion
- Worse in wet years
- NOT the same as Dogwood Anthracnose!
- [Learn more](#)



Image credit:
Mike Munster,
NCSU PDIC



Image credit:
N. Gregory,
UDEL Extension

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



'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



'Shamrock'

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

Our research team uses the Trial Garden to evaluate native plants and related cultivars for horticultural and ecological value, and to highlight the ecosystem services native plants provide.

IN THIS SECTION

Research

Trial Garden

Mt. Cuba Center Fellowships

Plant Introductions

Mt. Cuba Center, Delaware

Plant trials:

<https://mtcubacenter.org/research/trial-garden>

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 in spring loved by bees
- To 2' tall and wide
- Sun to part shade, wet to well drained soil
- Deer resistant



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

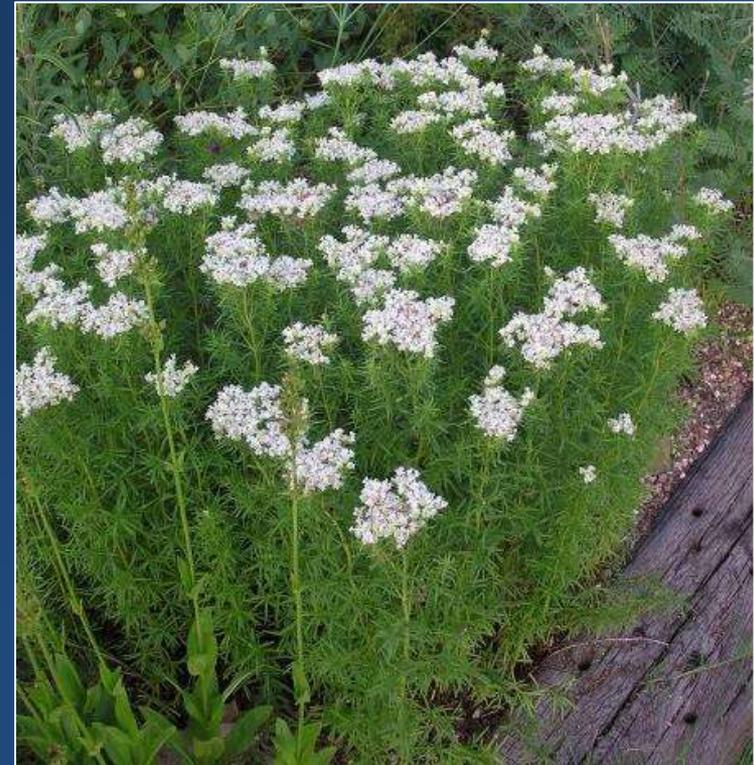
- 3' tall and wide
- Summer flowers
- Sun to part shade
- Moisture tolerant
- Monarch larval host
- Attracts many pollinators



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

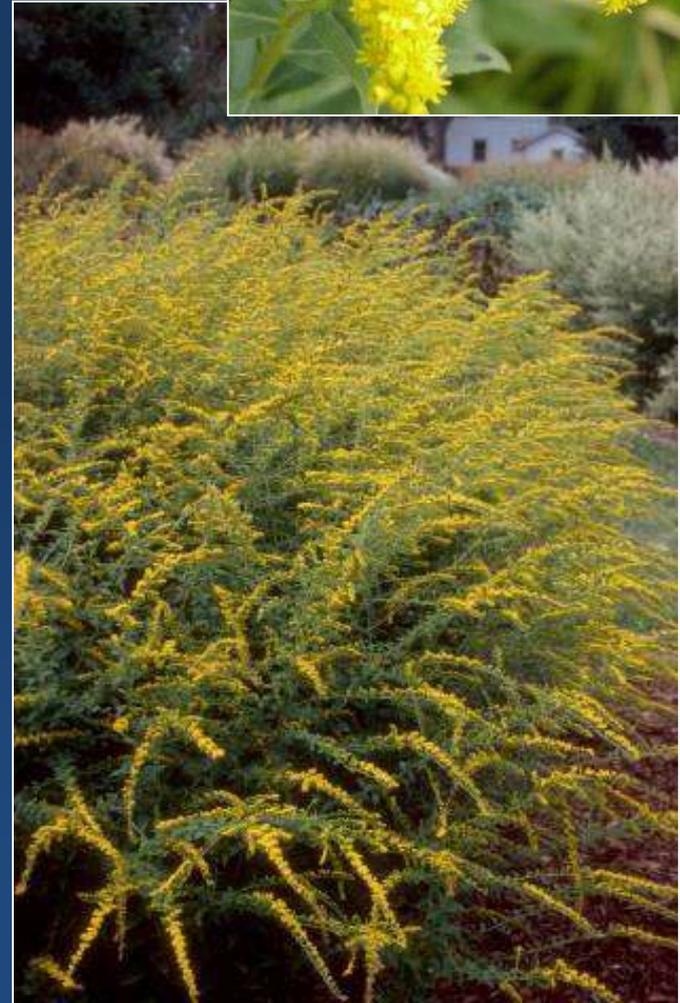


Goldenrods

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,** *Symphotrichum 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



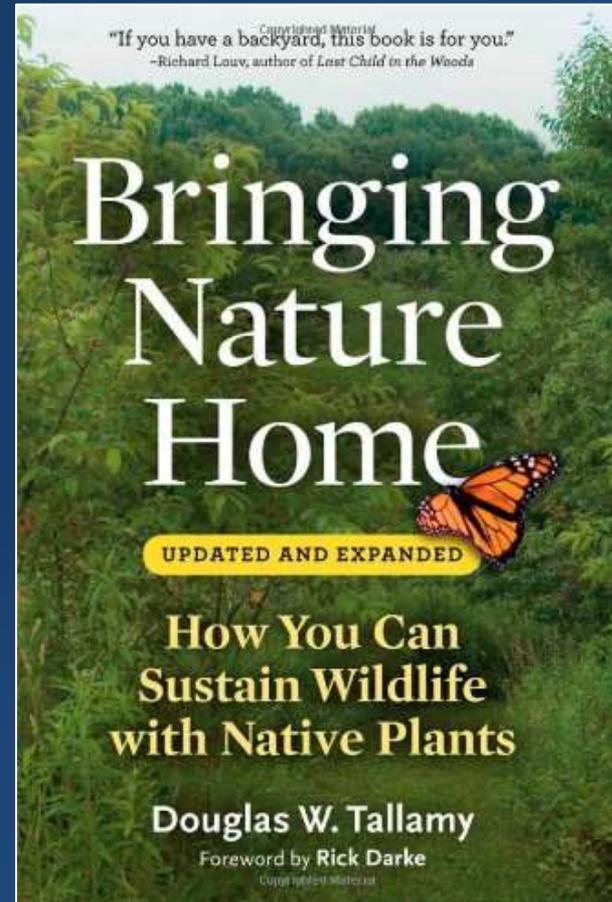
'Northwind'

Think differently about plants in your landscape:

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

- D. Tallamy, *Bringing Nature Home*

[Native Plant Finder database](#)



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

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 even tell you where you can

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
Carnivorous Plants	Roses
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](#)

LEARN MORE!

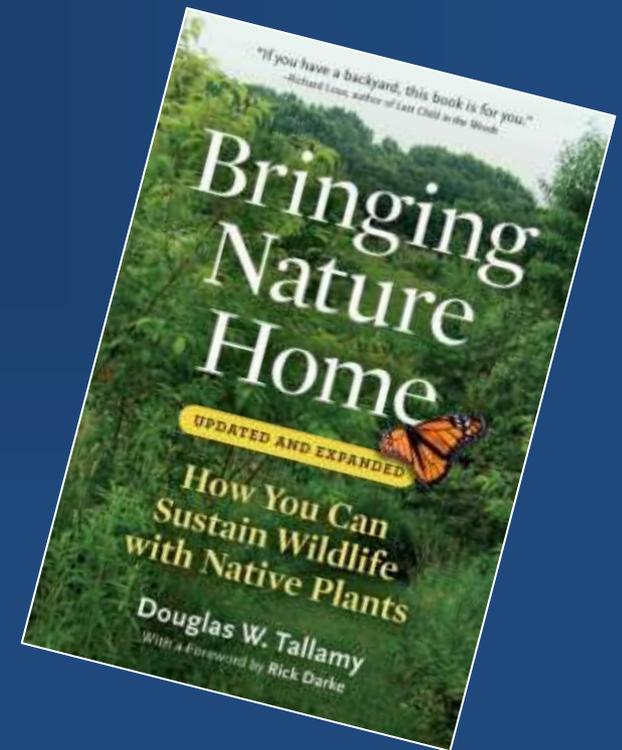
- **NC Botanical Gardens,**
Chapel Hill
 - <http://ncbg.unc.edu>
- **Duke Gardens,** Blomquist
Garden of Native Plants
 - <http://gardens.duke.edu>
- **Pollinator Paradise Garden,**
Pittsboro
 - <https://growingsmallfarms.ces.ncsu.edu/growingsmallfarms-pollinatorgarden>
- **NC Native Plant Society**
 - <http://www.ncwildflower.org>



NCBG Native Plant
Sale, May 4, 2019

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



Learn more:

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

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NC STATE

Extension Master Gardener

**Statewide
Program
Announcements**



NC Extension Master Gardener Program, State Level



Lucy Bradley
Extension
Specialist – Urban
Horticulture



Kathleen Moore
Program Assistant – Urban
Horticulture (part-time)

Current projects:

- EMGV training curriculum
- Plant Database



Charlotte Glen
State Coordinator,
NCEMG Program

NC STATE

Extension Master Gardener

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- May 28, Mark Hoffman
 - Grapes for NC Gardens
- July 23, Bridgette Lassiter,
 - Weeds and Invasive Plants
- Sept. 24, Barb Fair,
 - Caring for Trees with Storms in Mind



Welcome Spring!

Learn more and watch recordings: go.ncsu.edu/ppp



Register Online:

<http://go.ncsu.edu/EMGcollege2019>

**Registration closes April 15, but
don't wait** – some sessions have already
reached their limit!

Visit NCSUgarden, Statewide for full details



Helping Gardeners
Put Knowledge To WorkSM

2019 Search for Excellence

Accepting applications through April 30

- Submit outstanding MGV group projects that resulted in significant learning from 2017-18
- **Awards:** \$200, one winner selected for each of 7 categories
 - Funded by NCEMGV Endowment
- **Applications** and more info available on NCSUgarden, Statewide

Guilford County Crevice Garden,
2018 NC and International Master Gardener SFE 1st place,
Demonstration Garden Category





EXTENSION **MASTER GARDENER** ENDOWMENT

- Supports statewide EMG program development
 - Current balance, \$51,054, generates ~\$1500 interest per year
 - Funds Search for Excellence awards
- **2019 Anniversary Appeal**
 - Goal: Raise \$40,000 in honor of 40 year anniversary of EMG program in NC!
 - Every donation helps!
 - **Donate online:** go.ncsu.edu/ncmastergardeners
 - Be sure to indicate your county in the box "In Honor of"





- Purchase or renew your EMGV license plate!
- \$10 of \$20 renewal goes to NCEMGV Endowment
- go.ncsu.edu/emgv-license-plate



When these run out,
design will be updated
with new logo
(no watering can)



Extension Master Gardener

New Logowear Items Now Available!

go.ncsu.edu/emg-logowear



- Aprons
- Tote bags
- Jackets and sweatshirts
- Cotton long sleeve shirts
- Visor and hats!



Available with state program logo
OR county program logo!

NC STATE

Extension Master Gardener

NC STATE EXTENSION

Master Gardener | Harnett County



NC STATE

Extension Master Gardener 2018 ANNUAL REPORT

THANK YOU!



Find the full report: EMGV.ces.ncsu.edu