Returning NC Native Plants to Piedmont Landscapes

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Review these slides and explore additional resources to learn more about native plants:

http://go.ncsu.edu/nativeplants

Return of the Natives

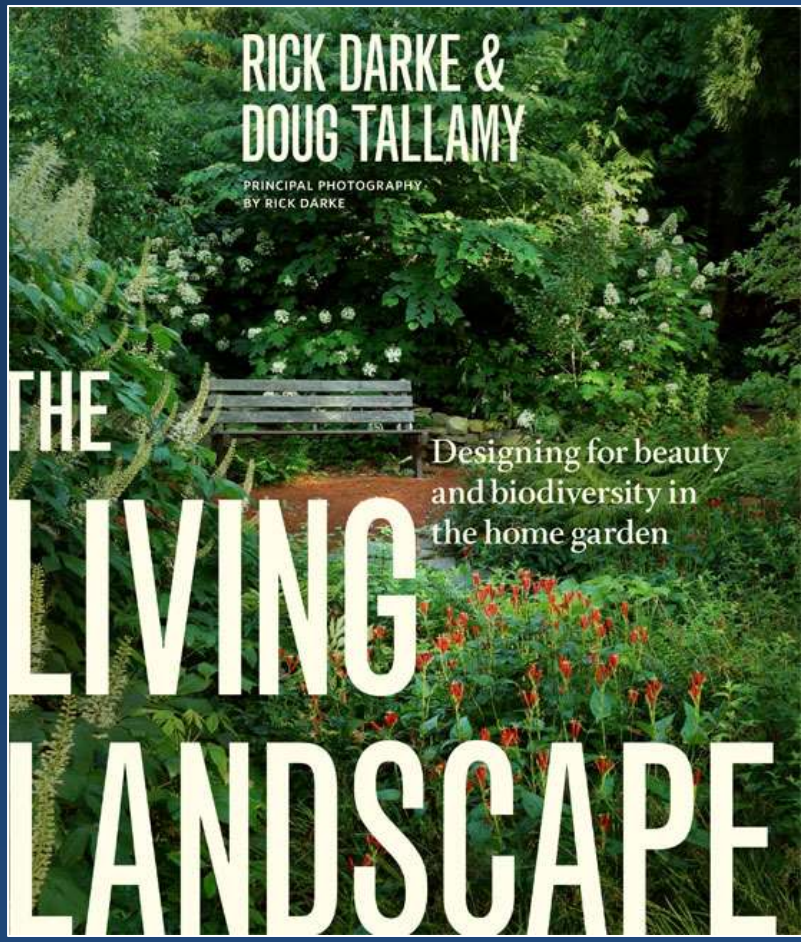
- Defining native
- Why you should plant natives
- A few great natives for Piedmont landscapes
- Resources to learn more!

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**"



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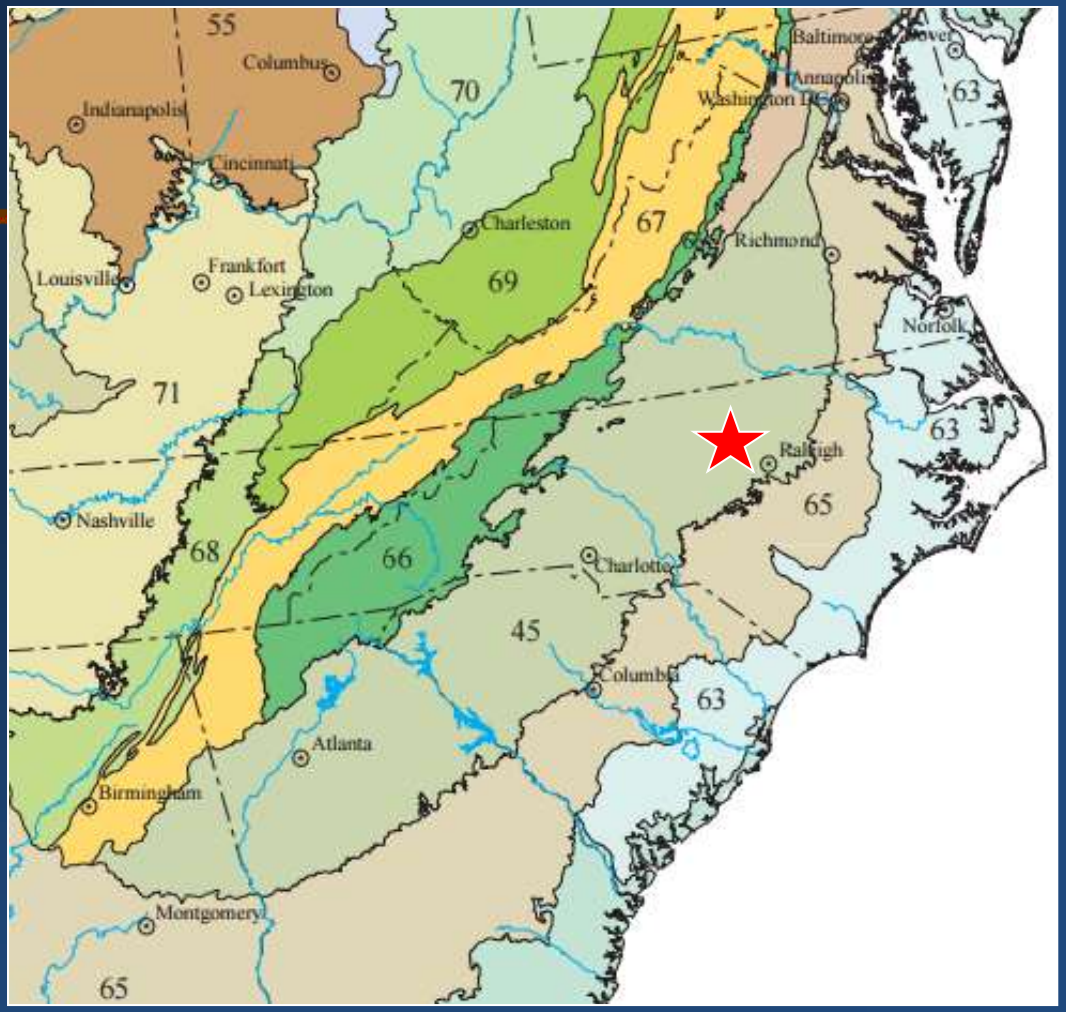
Given Place

- 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

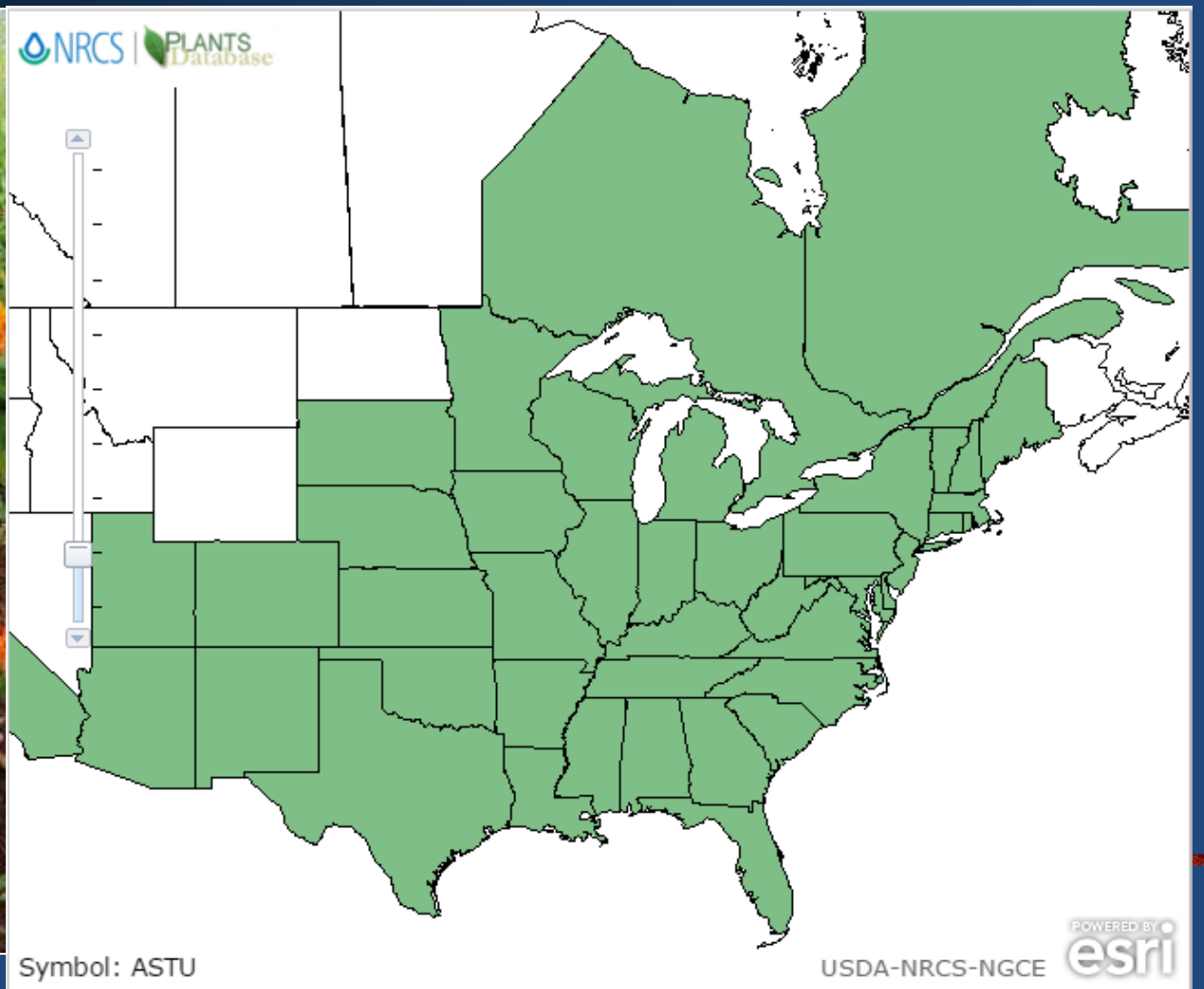
Consider native range of plants

- 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**

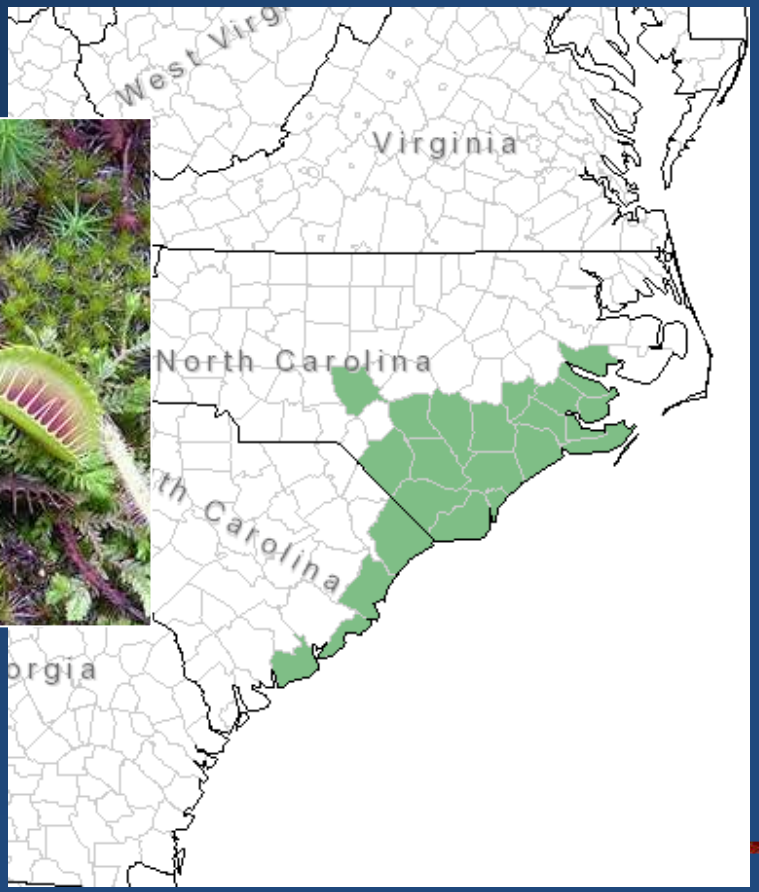
Butterflyweed

Asclepias tuberosa



Venus Flytrap

Dionaea muscipula



Period of Time

- 1000's of years
- Does not include plants recently introduced from other regions that have naturalized or become invasive

Not all plants found growing wild are native. **Naturalized species**, such as daylilies, persist after cultivation. Others are **invasive species**, such as Japanese honeysuckle

Daylily,
Hemerocallis fulva

Japanese Honeysuckle,
Lonicera japonica

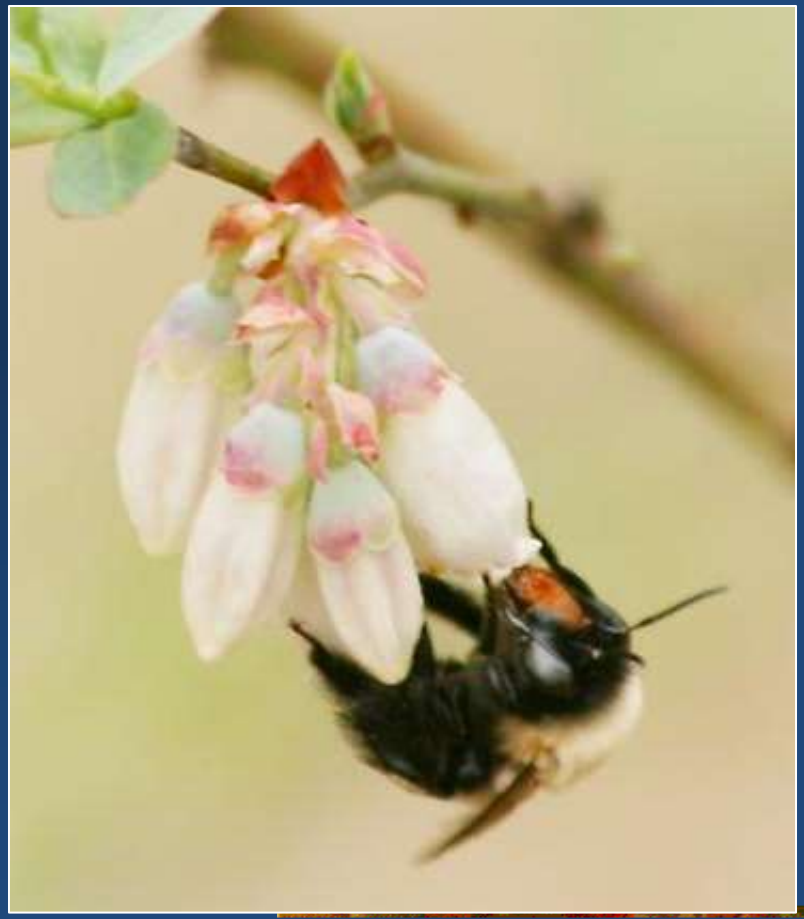
Physical Environment

- Plants adapt to specific conditions – soil, sun/shade, climate
- Occur in natural communities

Complex and Essential Relationships

Specialized feeders

- Adapted to feed on very narrow range of plants
- Typically one genera
- Most caterpillars, some beetles, some pollinators
- Eg. Southeastern Blueberry Bee - Vacciniums



Complex and Essential Relationships

Generalist feeders

- Can feed on wider range of plants
- Few plant eaters (herbivores) are generalists feeders
- Sap feeders more likely to be generalists
- Some pollinators are generalists

Fall Webworm – one of our few native generalist herbivores

Why Plant Natives?

Natives are needed to:

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

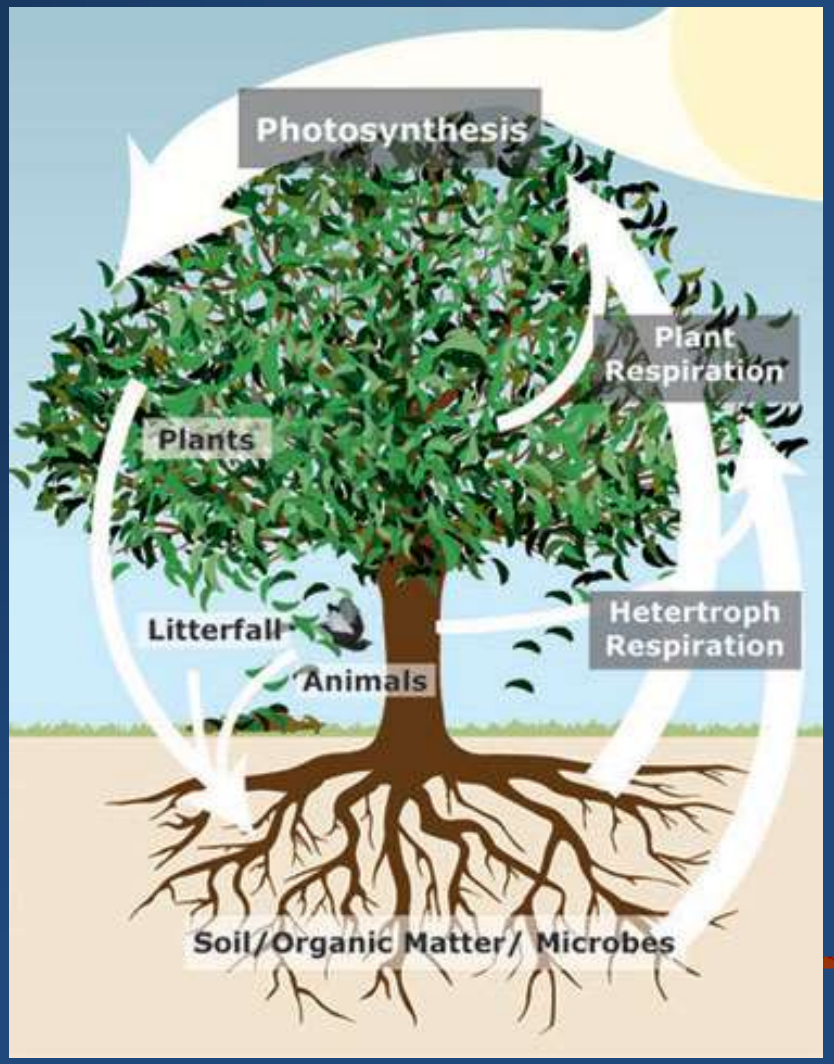
Healthy Ecosystems

- 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

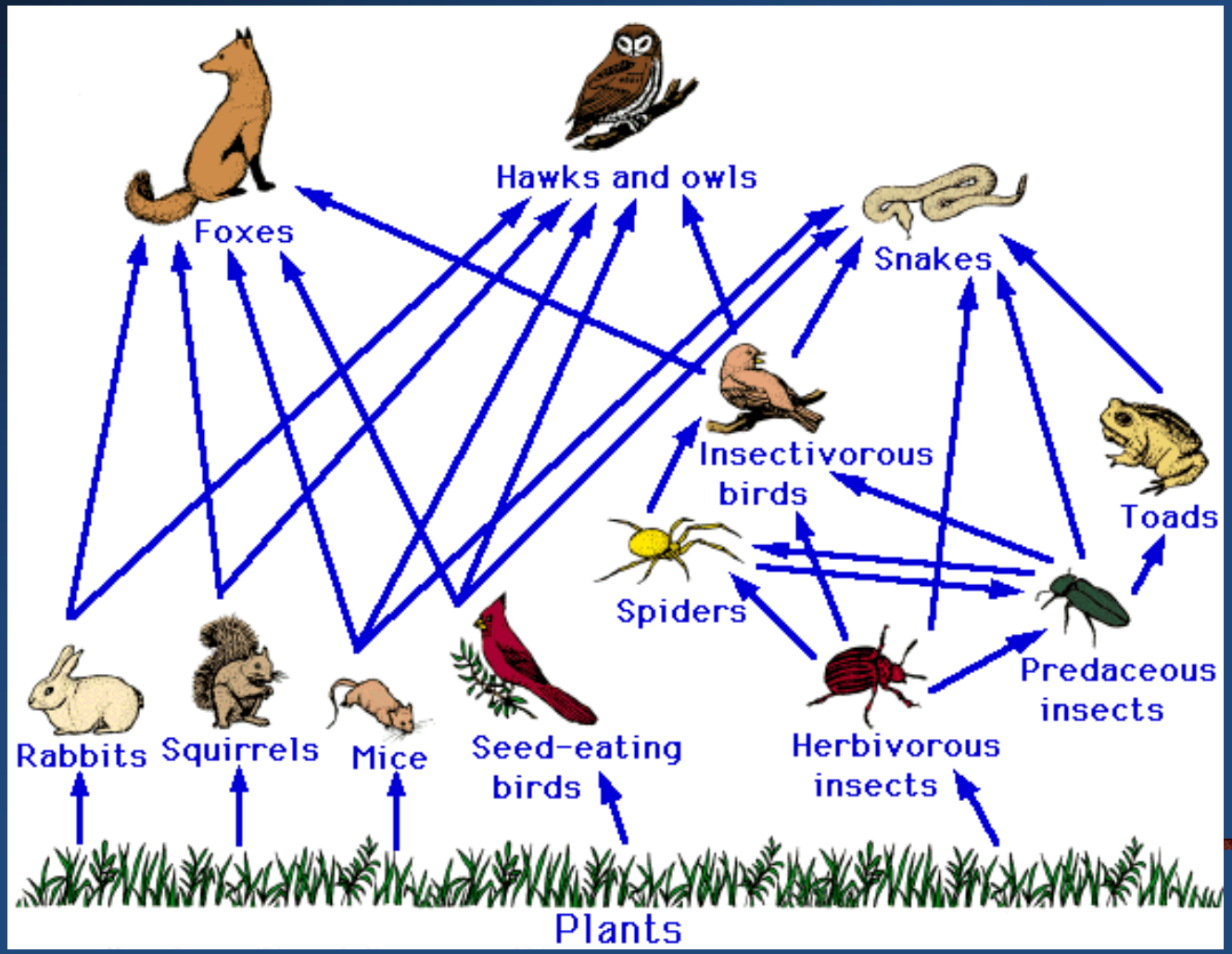
Plants Have Many Functions

- 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

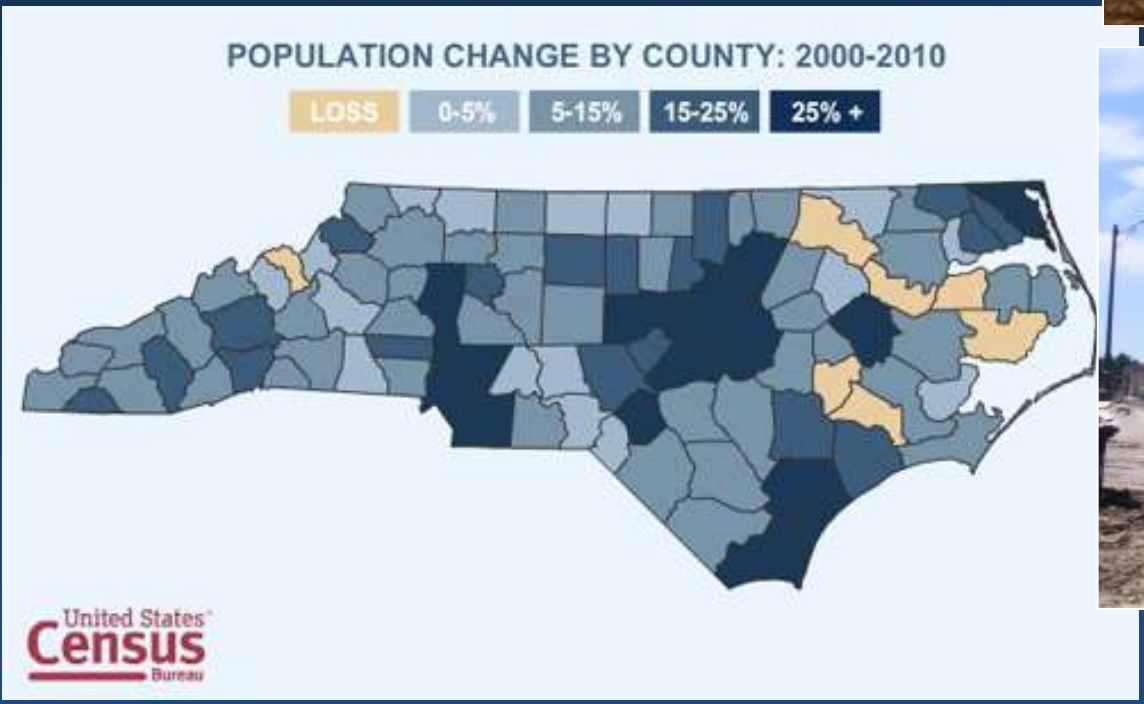
- Most herbivorous insects have adapted to feed on certain plants
- Plants with which they share an evolutionary history
- Plants native to the same region

Luna moth caterpillars love sweet gum

Monarchs

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

TREND: Natural areas replaced by managed landscapes



Managed Landscapes

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

The Challenge

- Create healthier ecosystems by changing the way:
  - Gardeners
  - Landscapers
  - Plant Breeders
  - Nurseries
- View and value landscape plants

Beyond Ornamental

- Landscape plants are more than ornaments!
- Living organisms
- Not in isolation - Part of the local ecosystem

Choosing plants for your landscape is more complex than choosing artwork for your home

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

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

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

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

Some natives are too vigorous in landscapes, especially rhizomatous plants

Canada Goldenrod
Solidago canadensis

Hardy Ageratum,
Conoclinium coelestinum

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

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

Others natives are too finicky

Lady Lupine,
Lupinus villosus

Pitcher Plant,
Sarracenia flava

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!

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

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

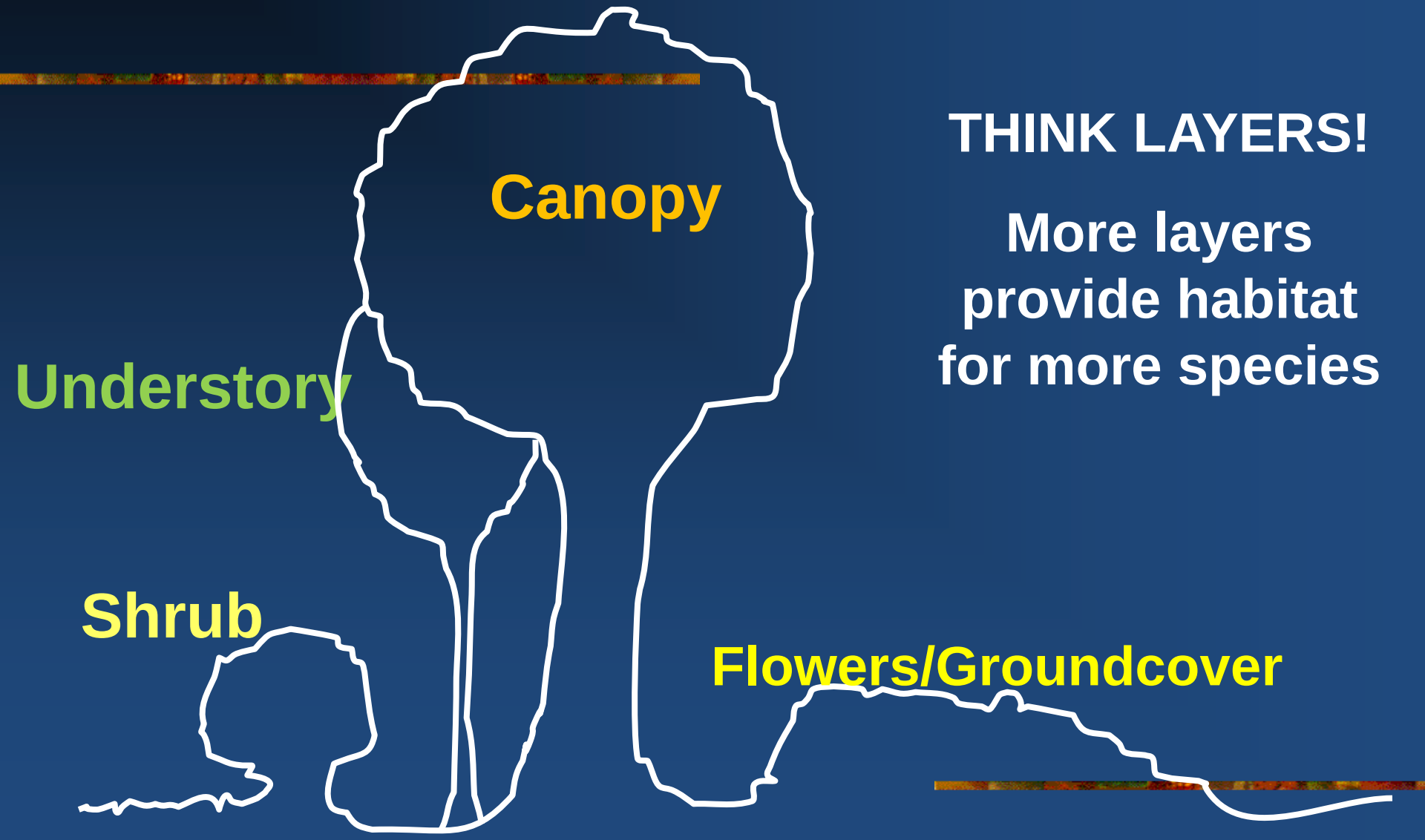
Ecological Design

- **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

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

Polyphemus 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 a threat to 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

Trees

- Provide joy from the day they are planted

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

- Most common in the landscape:
  - **Willow oak**, *Quercus phellos*
  - **Pin oak**, *Quercus palustris*
  - **Live oak**, *Quercus virginiana*

Willow Oak

Pin Oak

Oaks

- Ask for:
  - **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

Popular Understory Trees

- **Redbud**,
  Cercis canadensis
- **Flowering Dogwood**,
  Cornus florida
- **American Holly**,
  Ilex opaca

Serviceberry

Amelanchier species

- *A. arborea* –
  - Mtns and piedmont
  - Small tree
- *A. canadensis* –
  - CP and piedmont
  - Deciduous shrub
- Sun to part shade, moist soil
- White flowers in spring
- Sweet berries ripen late May

Fringe Tree

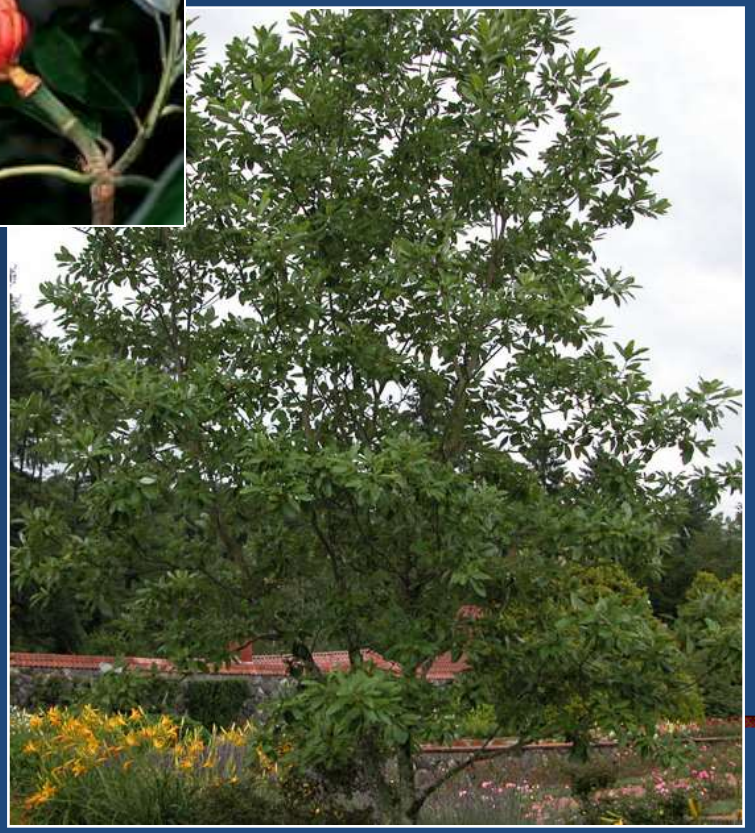
Chionanthus virginicus

- Native throughout NC in moist woodlands
- Deciduous
- Shrub or small tree, 10’-20’
- Sun to part shade
- Moist to well drained soil
- Lacy flowers in spring – males are heavier bloomers
- Female plants - dark blue berries late summer

Sweet Bay Magnolia

Magnolia virginiana

- Coastal plain and eastern Piedmont
- Grows 20’-30’ tall, often with multiple trunks
- Red seeds in fall eaten by birds
- Sun to part shade, moist soil – tolerates flooding
- Mostly deciduous



Fothergilla

- *F. major*, Piedmont
  - 6’-8’ x 6’-8’
- *F. gardenii*, Coastal Plain and sandhills
  - 3’-4’ x 3’-4’, suckers
- Deciduous shrubs
- Early spring flowers – honey scented
- Sun – pt. shade, moist or well drained soil
- Cultivar: ‘Mt. Airy’

Inkberry
Ilex glabra

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

American Beautyberry

Callicarpa americana

- Eastern half NC
- Deciduous shrub
- Sun to part shade
- Moist or dry soil
- Magenta berries late summer - attract songbirds
- 4’-5’ tall and wide
- Cut back to 1’-2’ in early spring


Sweat Bee


Rustic Sphinx Moth

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

- Native to Piedmont, some Coastal Plain counties
- Light to part shade, moist or well drained soil
- 1’ x 2’
- Evergreen foliage
- Early spring flowers
- Var. *australe* is stoloniferous, lower growing

Eastern Columbine

Aquilegia canadensis

- Native throughout NC, sporadic in Coastal Plains
- Blooms lt. March - May
- Sun or shade, well drained soil
- 12” – 24” tall in bloom
- Attracts butterflies and hummingbirds
- Will naturalize in the garden by self seeding

Bluestar

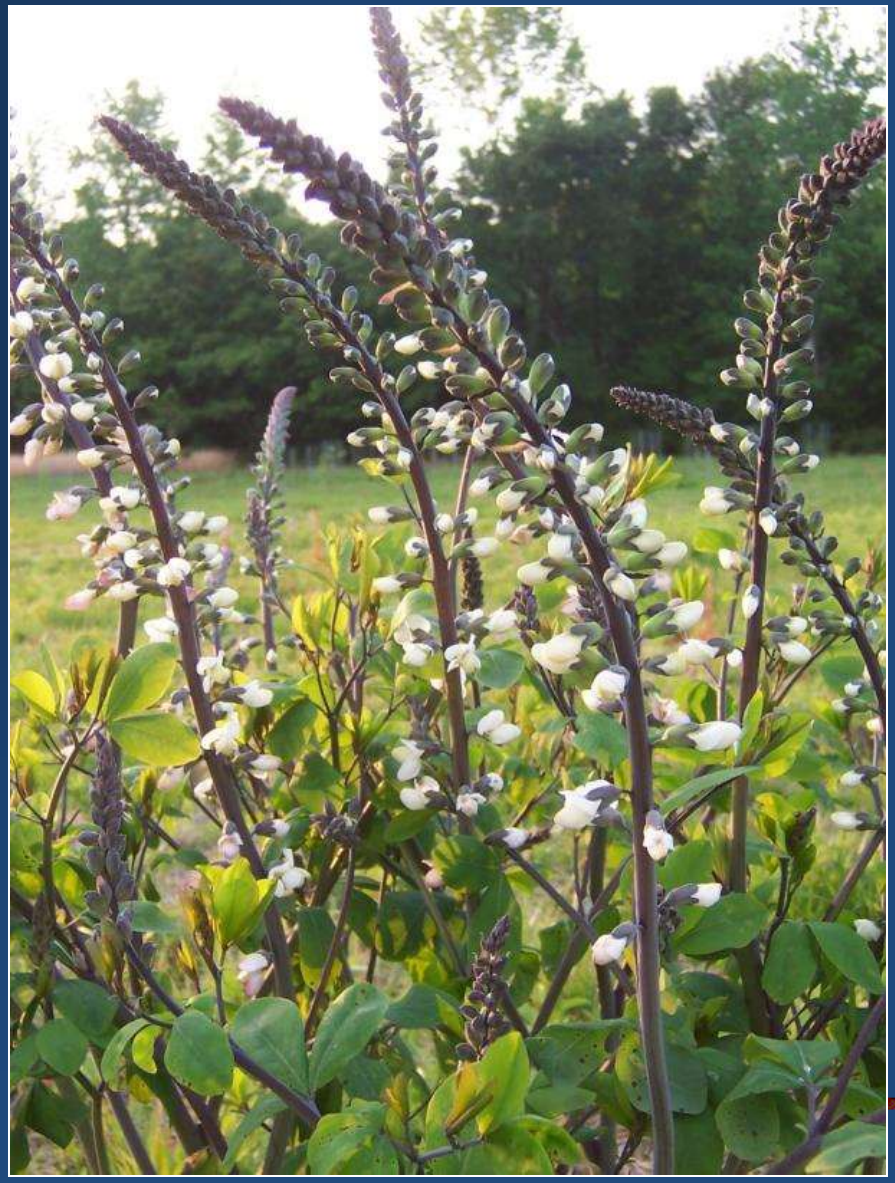
Amsonia tabernaemontana

- Native throughout NC
- Tough, long lived clumping perennial
- Pale blue flowers in spring loved by bees
- 1 to 2’ tall and wide
- Glossy green foliage, turns clear yellow in the fall
- Sun to part shade, wet to well drained soil

White False Indigo

Baptisia alba

- Native Piedmont, Neuse River Basin
- Long lived, clump forming perennial
- 3’-4’ tall, leggy
- Blooms May
- Other species and cultivars available’



‘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

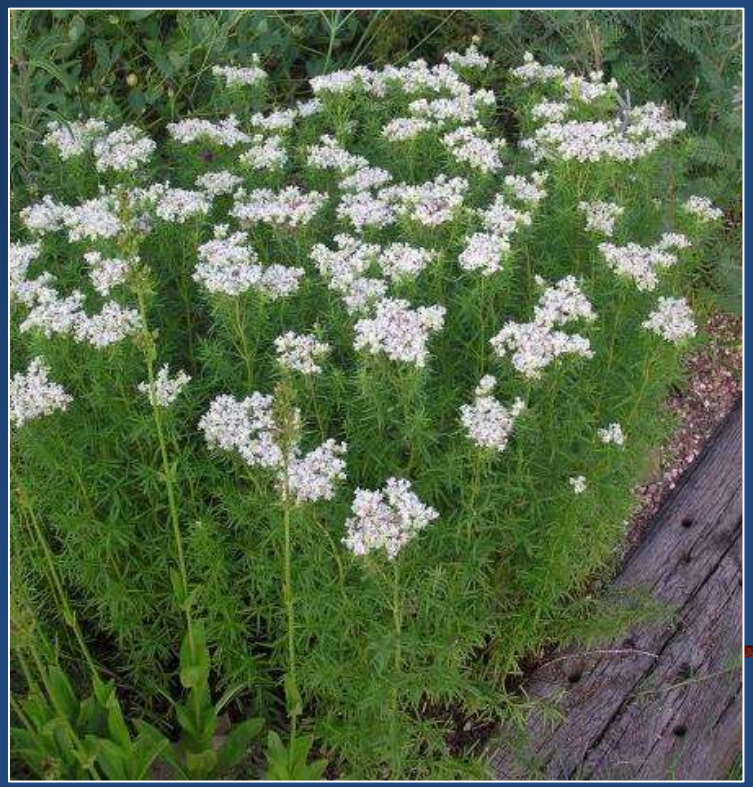
Support Monarchs – Plant Asclepias!

Swamp Milkweed
Asclepias incarnata

- Native Mountains, Piedmont, northern Coastal counties
- 3’ tall and wide
- Spring/early summer flowers
- Sun to part shade
- Moisture tolerant
- Monarchs! 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

Pycnanthemum loomisii

- Similar to *P. incanum* except clump forming – not rhizomatous!
- 3’-4’ tall
- Moist – average soil, sun-part shade

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

Cardinal Flower

Lobelia cardinalis

- Native throughout NC
- Sun or shade, wet to moist soil
- Red flowers late summer to fall
- 3’-4’ tall in flower
- Attracts hummingbirds and butterflies

Goldenrods
Solidago species

Several native species – some too vigorous for landscapes

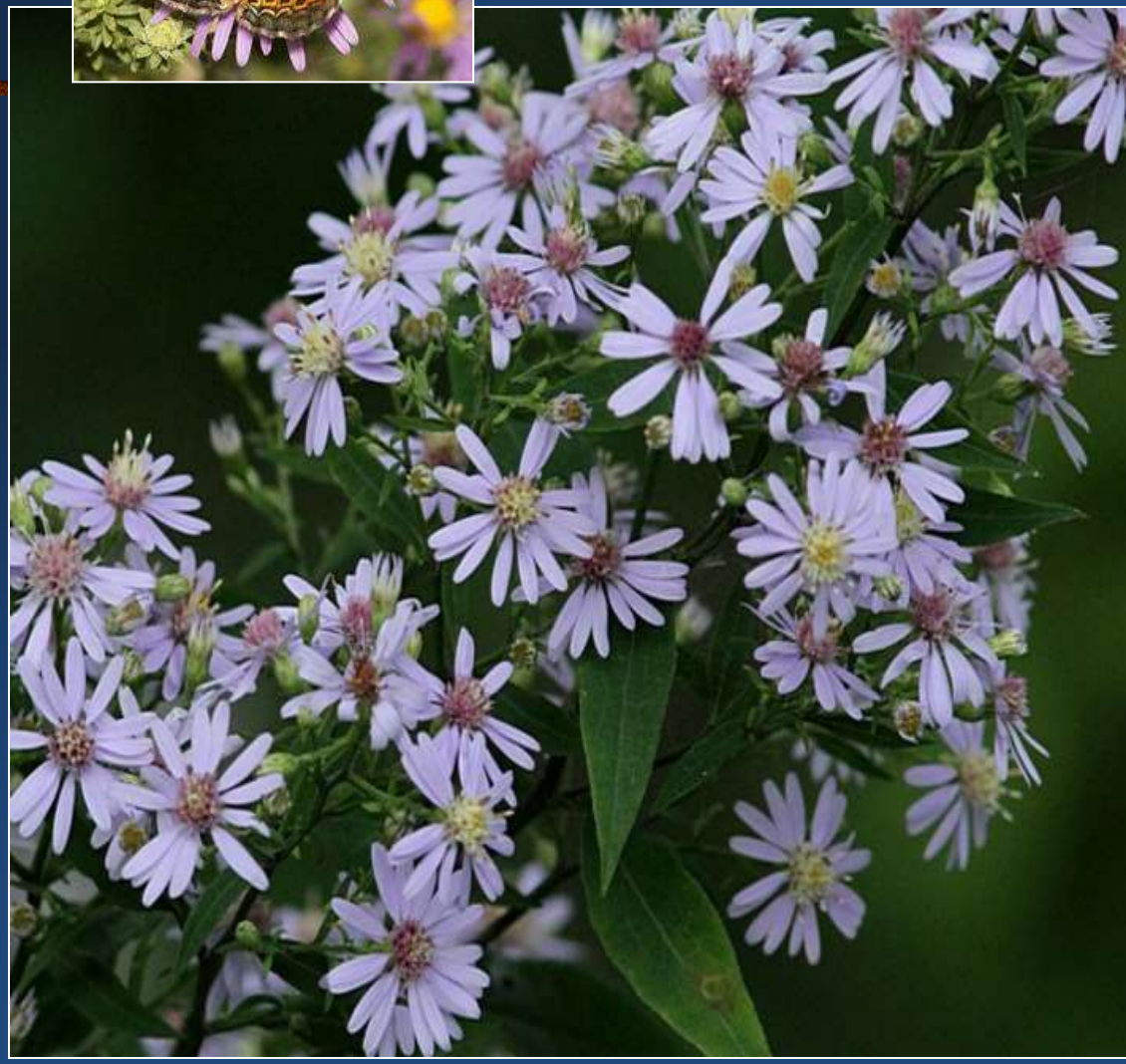
- *Solidago rugosa*
- Native throughout NC
- cultivar ‘Fireworks’
- Grows 3’-4’ high and wide
- Sun to part shade, well drained to wet soils
- Blooms late summer - nectar for butterflies and many other pollinators

Wreath Goldenrod

Solidago caesia

- Native throughout NC
- Shade tolerant!
- Drought tolerant!
- Clump forming, 2-3’ tall
- Grow in full-part shade, moist-dry soil

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.

Learn More:
Going Native Website

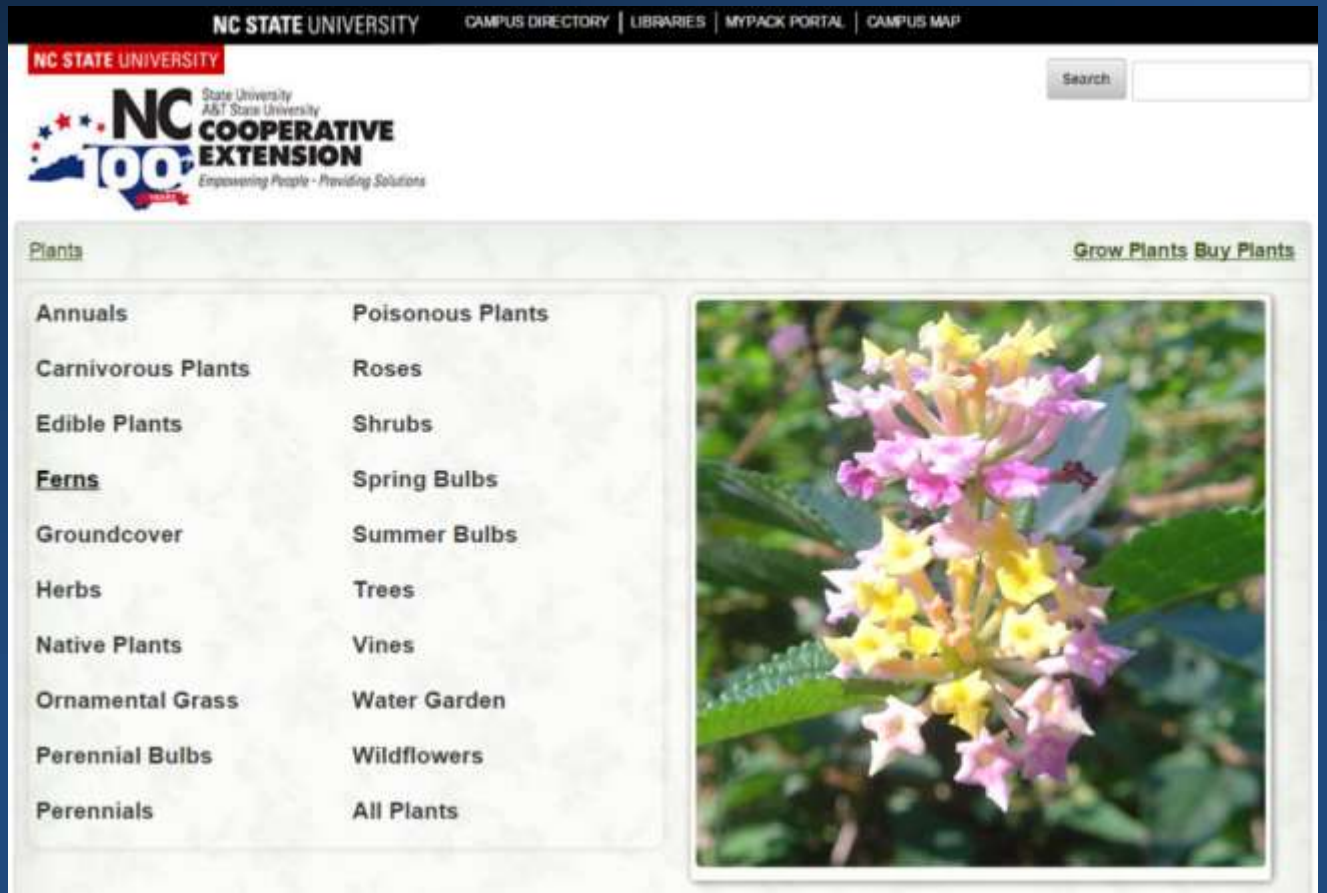
http://www.ncsu.edu/goingnative/

Searchable plant database!

Extension Plants Database:

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

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



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 Kingsorse Garden, CC BY-NC-SA - 2.0

H. quercifolia 'Snow Queen'
Photo by Henryr10, CC BY-NC-ND - 2.0

Pollinator Conservation

http://www.protectpollinators.org

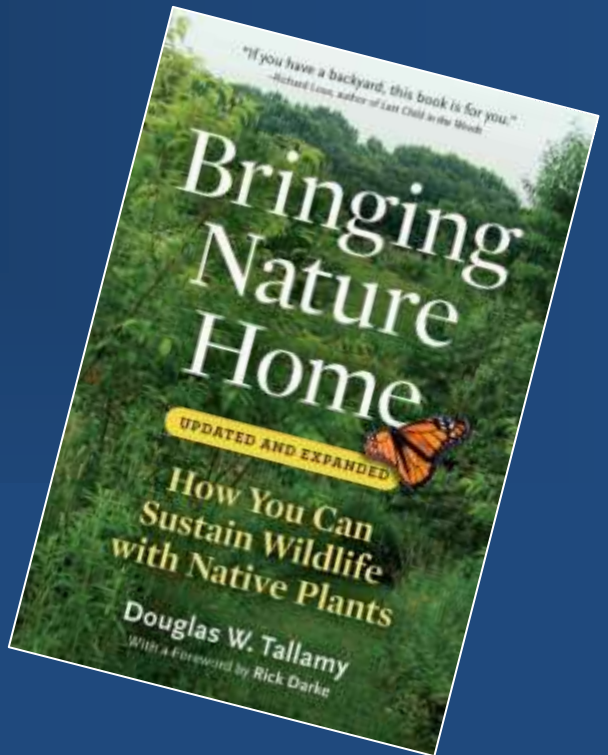
Visit the Pollinator Paradise Garden in Pittsboro!

Extension Gardener Handbook

- http://content.ces.ncsu.edu/extension-gardener-handbook
- Many topics:
  - Soils, Insects, Landscape Design, Vegetables, Flowers, etc.
- **Native Plants Chapter** online early 2017

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?

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