

# Bringing Natives Back to Carolina Landscapes



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**Charlotte Glen**  
Horticulture Agent  
NC Cooperative Extension –  
Chatham County Center



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

**<http://go.ncsu.edu/nativeplants>**



# What is Cooperative Extension?

- **An educational partnership**, based within the land grant university system
- **Composed of a nationwide network of**
  - Educators
  - Researchers
  - Volunteers

The logo for NC State University, featuring the text "NC STATE UNIVERSITY" in white, bold, sans-serif capital letters on a red rectangular background.

**NC STATE  
UNIVERSITY**

The logo for North Carolina A&T State University, featuring a stylized yellow "A" and "T" intertwined, with a registered trademark symbol. Below the logo, the text "NORTH CAROLINA A&T STATE UNIVERSITY" is written in white, sans-serif capital letters on a dark blue background.

**NORTH CAROLINA A&T  
STATE UNIVERSITY**

The logo for NC Cooperative Extension, featuring the letters "NC" in large, bold, black font. To the right of "NC" is the text "State University A&T State University" in a smaller font. Below "NC" are two horizontal bars, one red and one blue. To the right of the bars is the text "COOPERATIVE EXTENSION" in large, bold, black font. At the bottom right is the tagline "Empowering People • Providing Solutions" in a smaller, italicized font.

**NC** State University  
A&T State University  
**COOPERATIVE  
EXTENSION**  
*Empowering People • Providing Solutions*

# Our Mission

- **Practical, research based information**
- **Focus areas:**
  - Agriculture, Food, Youth
- **Mission:**
  - Individuals, families and communities
  - Achieve economic prosperity, environmental stewardship, and improved quality of life



# Resources Available from Cooperative Extension

- **Local Centers in every NC County!**
  - Classes and workshops
  - Answers to your questions
  - Information online and in print
  - Your connection to the state and nation wide Extension network
  - [www.ces.ncsu.edu](http://www.ces.ncsu.edu)



# NC Cooperative Extension **Durham County Center**

- 721 Foster St.
- **Cheralyn Schmidt**, Horticulture Agent
- Briggs Avenue Community Garden,  
<https://briggscommunitygarden.wordpress.com>
- **Garden Hotline:**  
919-560-0528
- Spring class schedule TBA,  
<https://durham.ces.ncsu.edu>



# 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 ornamental!
- Living organisms
- Not in isolation - Part of the local ecosystem

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





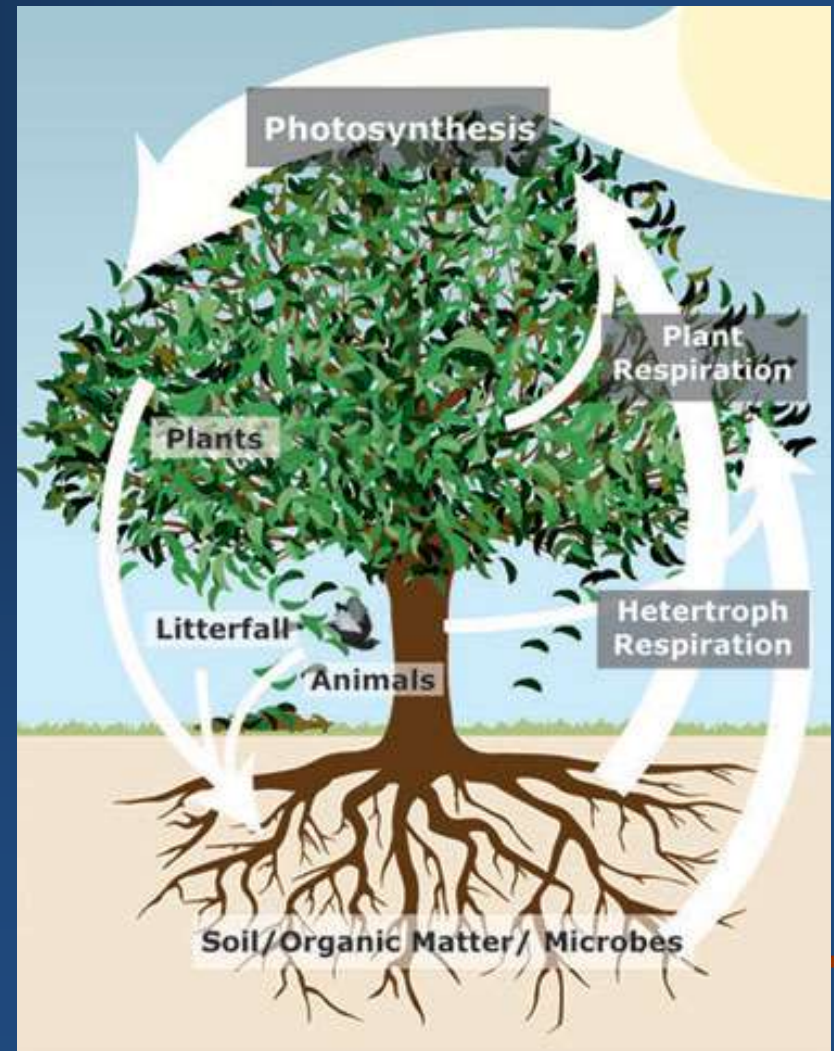
# Healthy Ecosystems

- Support a **diverse array** of plants, insects, birds and animals
- **Lots of redundancy**
  - Many different species performing the same function
- Healthy ecosystems home to many different plant species



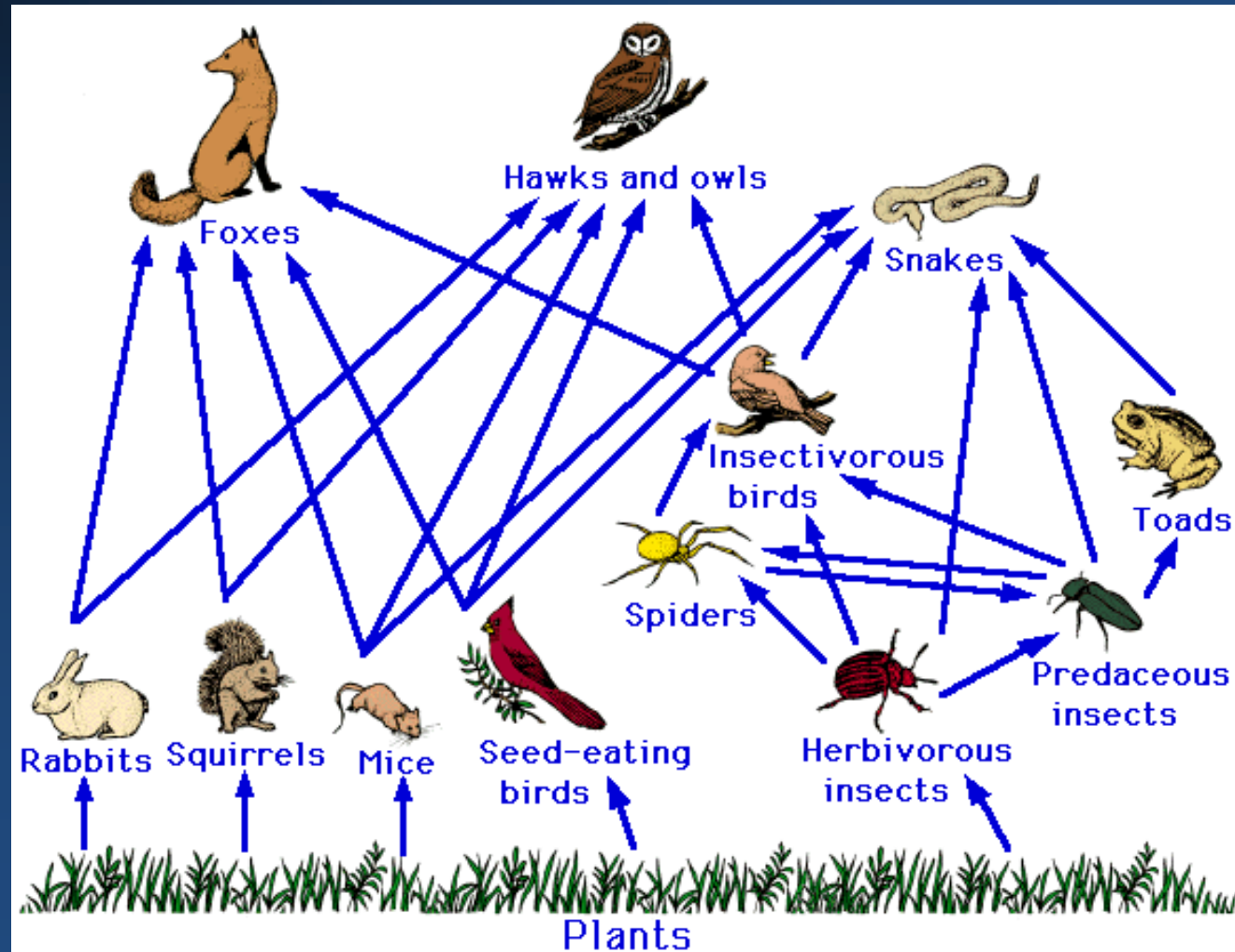
# Plants Have Many Functions

- 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



# 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](#)

# 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





**Monarch - host: *Asclepias* species**



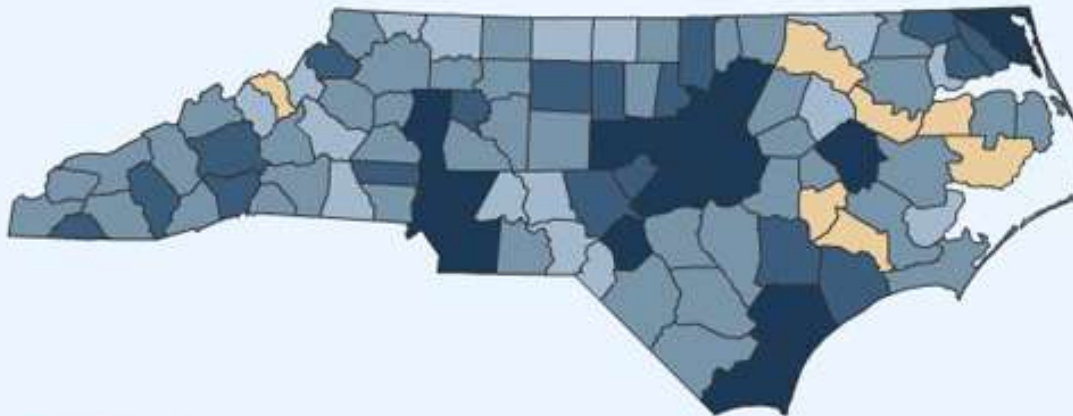
**Black Swallowtail - host: dill, fennel, cilantro, other plants in carrot family**

# TREND: Natural areas replaced by managed landscapes



POPULATION CHANGE BY COUNTY: 2000-2010

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





# Managed Landscapes

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



# A New Paradigm

- Select landscape plants based upon traditional factors:
  - Appearance
  - Performance
  - Adaptation to site conditions
- **PLUS** ability to sustain native species
  - Support ecosystem services
  - Unique to native plants



# More Natives, Not All Natives Every Site

- Few natives tolerate highly urban environment



Gloomy  
Scale

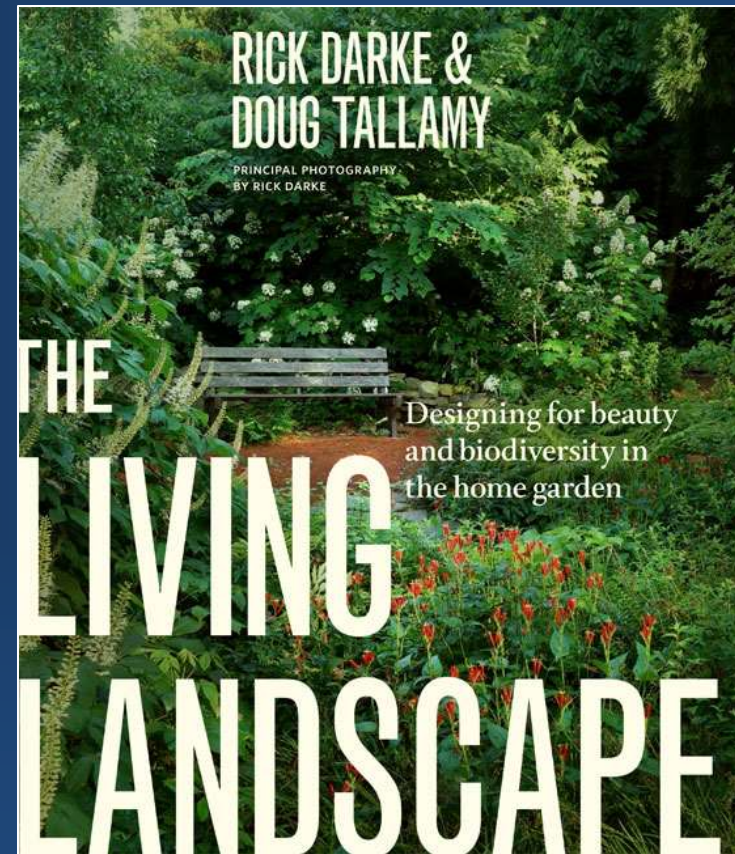
Parking lots are a graveyard  
for red maple

# 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 if you do not define location
- Think ecoregion, not political boundaries
- NC Piedmont = “Southeastern US Plains”



## Ecoregions of North America

[http://www.epa.gov/wed/pages/ecoregions/na\\_eco.htm](http://www.epa.gov/wed/pages/ecoregions/na_eco.htm)

# 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*

# Complex and Essential Relationships



# Physical Environment

- Plants adapt to specific conditions
- Occur in plant communities





# Getting the Most Benefit

## Ecological Design

- More plants natives to region
- **LAYERS** - Greater diversity of species and height range
  - Less lawn - More trees, shrubs, and flowers
- **Year round food supply**
  - Flowers, fruits, seeds, leaves



# Getting the Most Benefit

Help plants thrive:

- **Prepare the soil**
  - Alleviate compaction
  - Incorporate organic matter
- **Choose plants adapted to site**
  - Sun/Shade
  - Moisture/Drainage
- **Water during establishment**



# A Few Great Natives for NC 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



# 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



# Add trees to connect fragmented areas

- **Work with neighbors to:**
  - Protect existing natural areas
  - Connect natural areas
- Creates larger area for habitat
- Bridges two or more existing areas to create a corridor



# Foraging Hubs

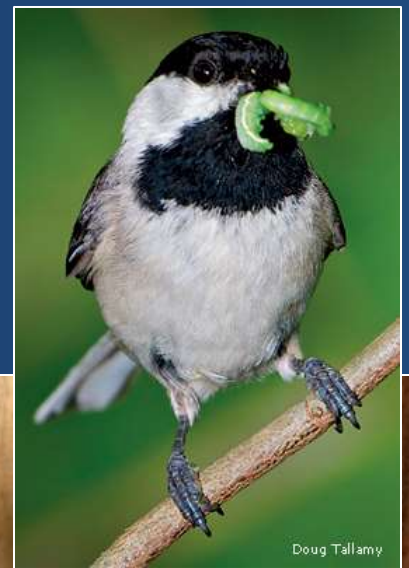
- Trees are the most important source of caterpillars
- Most caterpillar species feed on very narrow range of species
- Feed for part of life cycle – usually 2-4 weeks



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!**



# 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* – coastal plain 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
- Attractive red seeds in fall are 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 Plains 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



**'Shamrock'**

# American Beautyberry

*Callicarpa americana*

- Native eastern half NC
- Tough 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**

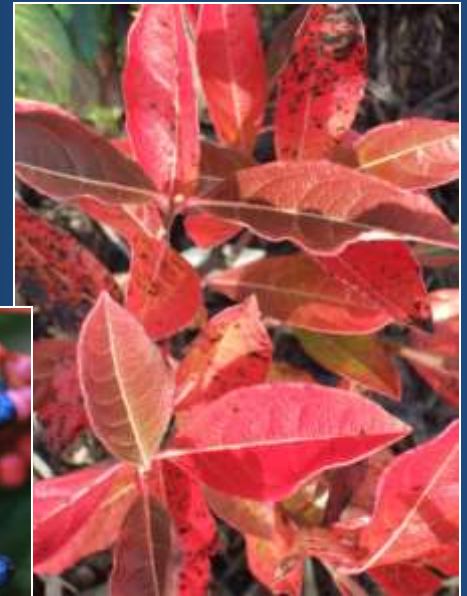


**Rustic Sphinx Moth**

# Possumhaw Viburnum

## *Viburnum nudum*

- Native throughout NC
- Deciduous shrub – looks evergreen
- Grows 6-10 feet tall
- For moist to wet soils, sun to light shade
- Excellent fall color
- Fruit changes color as it ripens, from green to red, pink, and finally blue
- Cultivars: 'Winterthur' and 'Brandywine'



Snowberry  
Clearwing 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*

# Pollen and nectar more accessible in single flowers

A close-up photograph of a purple coneflower (Echinacea purpurea) with a prominent brown central disk and radiating purple petals. The text 'Pollinator Preferred!' is overlaid in yellow.

**Pollinator  
Preferred!**

Purple Coneflower,  
*Echinacea purpurea*



Echinacea 'Razzmatazz'

# 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



# Coreopsis, Tickseed

- Several species native to NC
- Sun lovers
- Threadleaf Coreopsis
  - *C. verticillata*
  - Long live
  - 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*

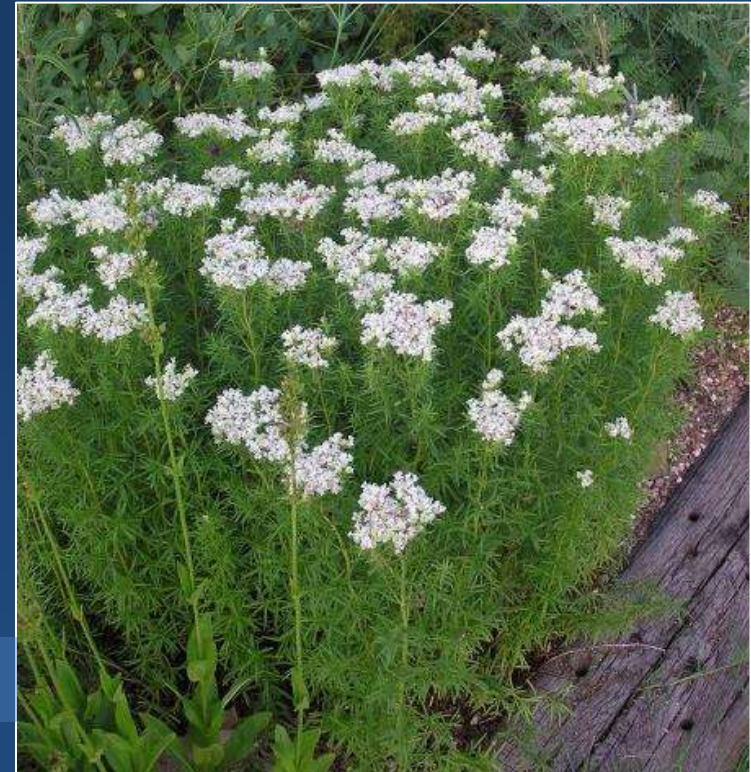
- Native Mountains, Piedmont, northern Coastal counties
- 3' tall and wide
- Spring/early summer flowers
- Sun to part shade
- Moisture tolerant
- Monarchs! Attracts many pollinators



# 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*



# Rough Stemmed Goldenrod

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



# Narrow Leaf Sunflower

*Helianthus angustifolius*

- Native Piedmont, Coastal Plain
- Grows well in sun, moist to well drained soils
- Clump forming perennial
- 5'-8' tall, 5' wide
- Fall blooms - Excellent nectar source for butterflies
- Winter seed - birds



# 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



# Calico Aster

- *Symphiotrichum lateriflorum*
- Native statewide
- Sun to light shade, moist to wet soil
- Fall blooming
- 4' tall and wide
- Attracts many pollinators and butterflies



# 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.

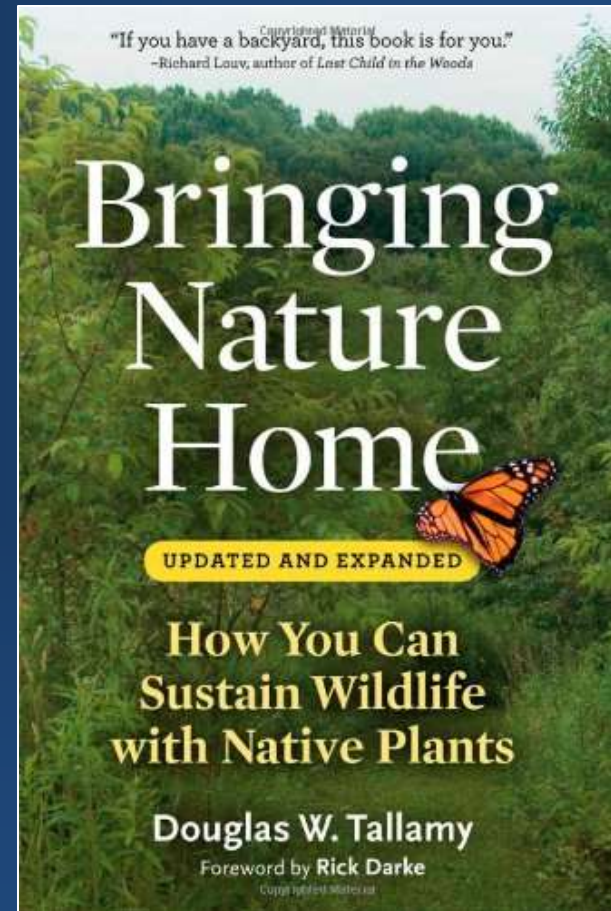


**'Northwind'**



“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 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/>


NC STATE UNIVERSITY    CAMPUS DIRECTORY | LIBRARIES | MYPACK PORTAL | CAMPUS MAP

NC STATE UNIVERSITY    Search

**NC** State University  
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*Empowering People - Providing Solutions*

Plants Grow Plants Buy Plants

Annuals	Poisonous Plants
Carnivorous Plants	Roses
Edible Plants	Shrubs
<b>Ferns</b>	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>



The screenshot shows the homepage of the 'Growing Small Farms' website. At the top is a banner image of a garden with the text 'Growing Small Farms'. Below the banner is a navigation menu with links: Chatham Extension Center, News, Farmer Resources, Web Resources, Workshops, and What's New. On the left side, there is a quote by Barbara Kingsolver: 'Whatever lofty things you might accomplish today, you will do them only because you first ate something that grew out of dirt.' Below the quote is a list of navigation links: Home, Photos, Crop Production, Pest Management, Direct Marketing, Local Farms, Farmers' Markets, Buy Local Guide, and Pollinator Conservation. In the center, the main heading is 'Pollinator Conservation Guide' in green, with a sub-heading 'Photos by Debbie Roos, Agricultural Extension Agent.' Below the text are three small images: a bumblebee on a purple flower, a wasp on a yellow flower, and a bee on a white flower.

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.

- Home
- Photos
- Crop Production
- Pest Management
- Direct Marketing
- Local Farms
- Farmers' Markets
- Buy Local Guide
- Pollinator Conservation



Visit the Pollinator Paradise Garden in Pittsboro!

# Learn More

## Extension Gardener Handbook

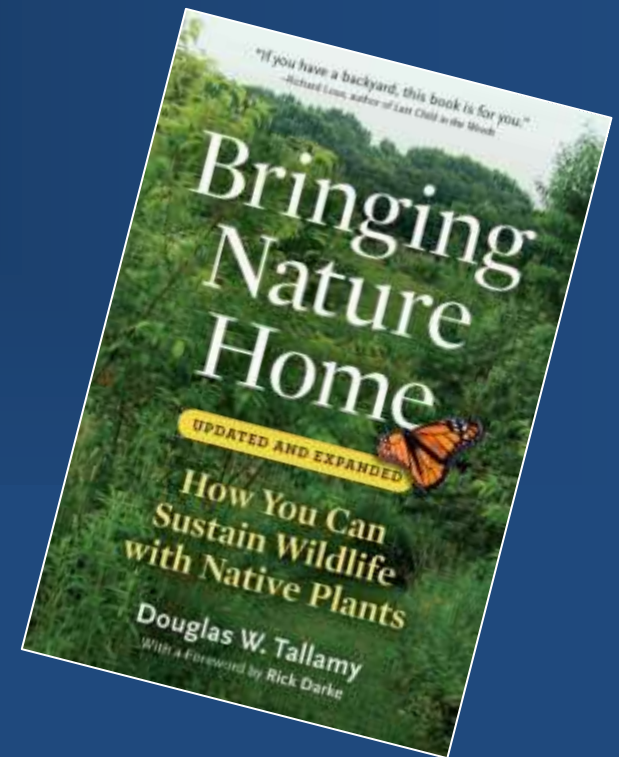
- <http://content.ces.ncsu.edu/extension-gardener-handbook/>
- Chapters cover many topics
  - Soils, Insects, Landscape Design, Vegetables, Flowers, etc.
- **Native Plants Chapter** online later this year



**Cross Vine,**  
*Bignonia*  
*capreolata*

# 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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Thanks to  
**Growing Wild Nursery,**  
Siler City  
for use of several images  
[growingwildnursery.com](http://growingwildnursery.com)



Learn more:

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

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