

Return of the Natives!

Bringing Natives Back
to Carolina Landscapes



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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



Ecosystem

a natural system consisting of all plants, animals and microorganisms in an area **functioning together** with all the non-living physical factors of the environment

(Christopherson 1997)



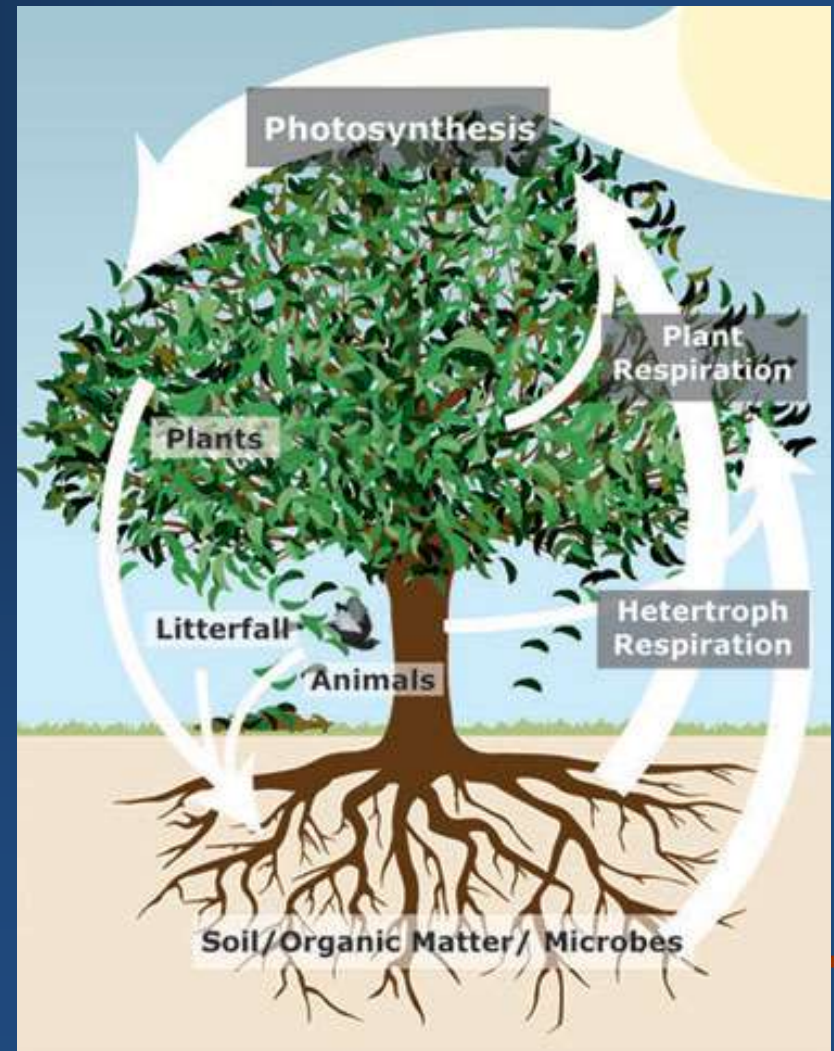
Healthy Ecosystems

- Diverse
- Lots of redundancy
 - Many different species performing the same function
- Healthy ecosystems have a diversity of plant species



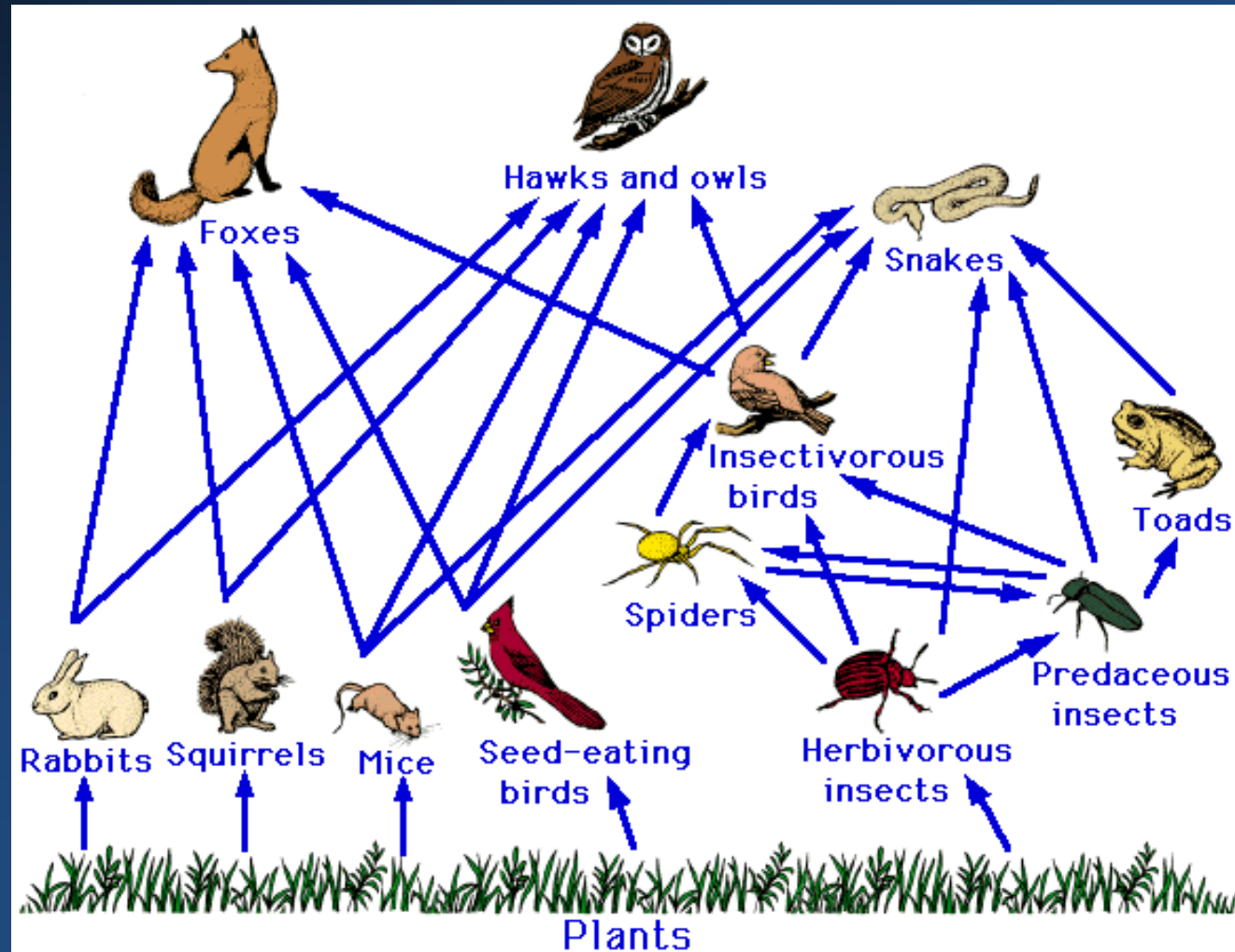
Plants Have Many Functions

- 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



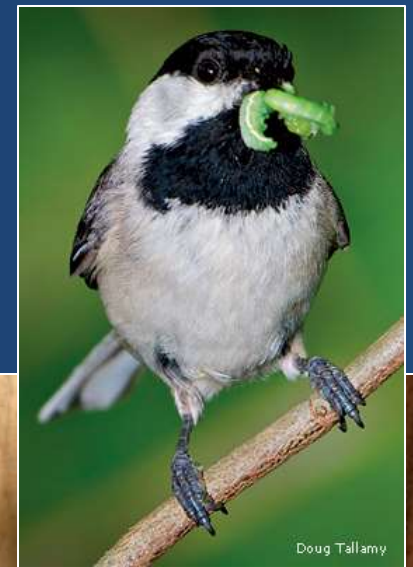
Black Swallowtail - host: dill, fennel, cilantro, other plants in carrot family

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!



Chickadees



- Like nearly all terrestrial birds, chickadees rear their young on insects, not seeds or berries
- Chickadees are caterpillar specialists
 - Requires 6,000-10,000 caterpillars to fledge a single nest!



Landscapes

- Part of the local ecosystem
- Often dominated by non-native plants
 - Turf
 - Exotic trees, shrubs, flowers
 - Focus on “pest free”
- Do not support healthy ecosystems

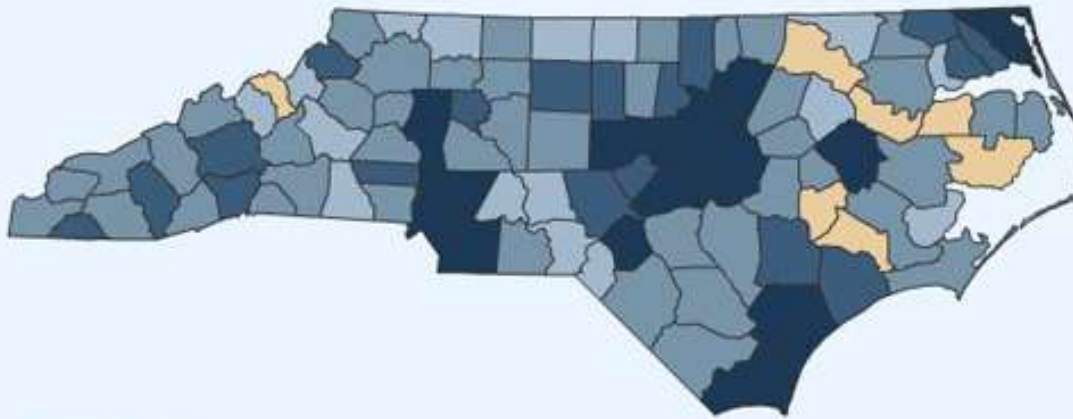


TREND: Natural areas replaced by managed landscapes



POPULATION CHANGE BY COUNTY: 2000-2010

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



A New Paradigm

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



Which is preferable?



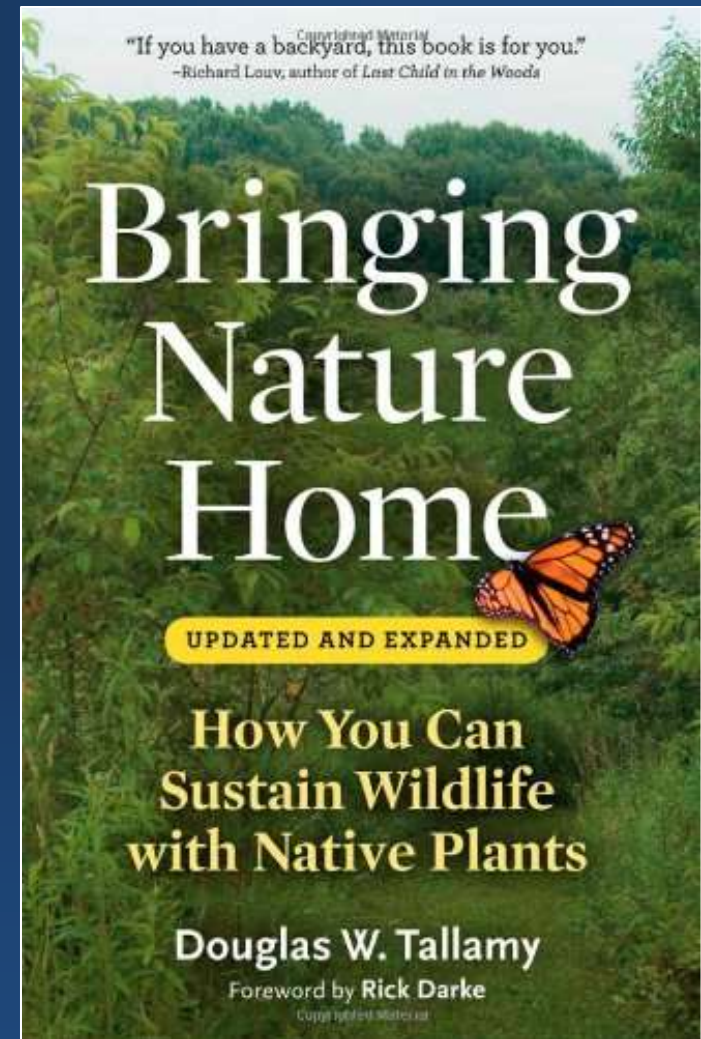
Purple Coneflower,
Echinacea purpurea



Echinacea 'Razzmatazz'
Extra petals make pollen and nectar
less accessible to pollinators

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

- D. Tallamy,
*Bringing Nature
Home*



Native Plants

- Evolved with native insects
- Normal feeding damage is tolerated
- Most 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 Natives

- Many natives not adapted to highly urban environment



Gummy
Scale

Parking lots are a graveyard
for red maple

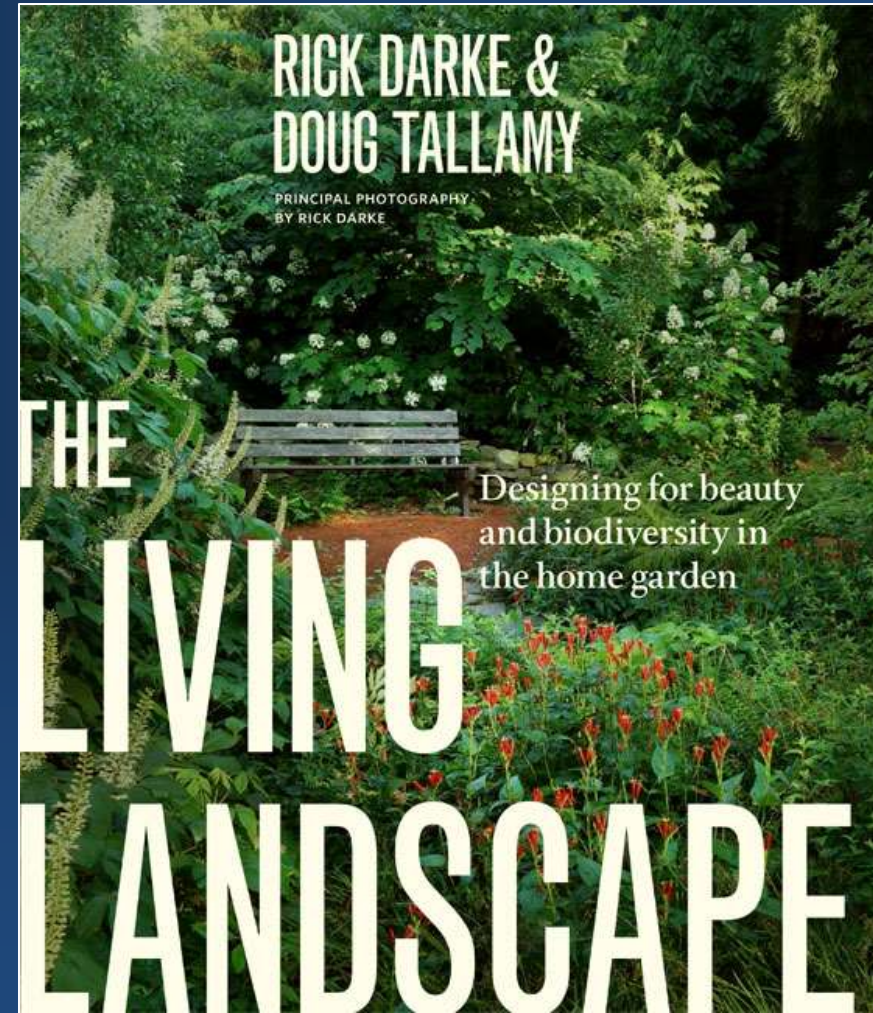
Others too finicky,
lady lupine, *Lupinus villosus*



Some are too vigorous in landscapes
Hardy Ageratum, *Conoclinium coelestinum*

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
- Many different plant communities within each ecoregion



Ecoregions of North America

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



Getting the Most Benefit

Ecological Design

- More plants natives to region
- 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

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



Black-eyed Susan,
Rudbeckia fulgida

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



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

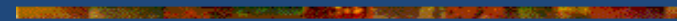


Pin Oak



Trees

- Provide joy from the day they are planted



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*



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



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'

Coral Honeysuckle

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



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



Green and Gold

Chrysogonum virginianum

- Native to Piedmont, some Coastal Plains counties
- Light to part shade, moist or well drained soil
- 1' x 2'
- Evergreen foliage
- Early spring flowers
- *Var. australe* is stoloniferous = good groundcover



Bluestar

Amsonia tabernaemontana

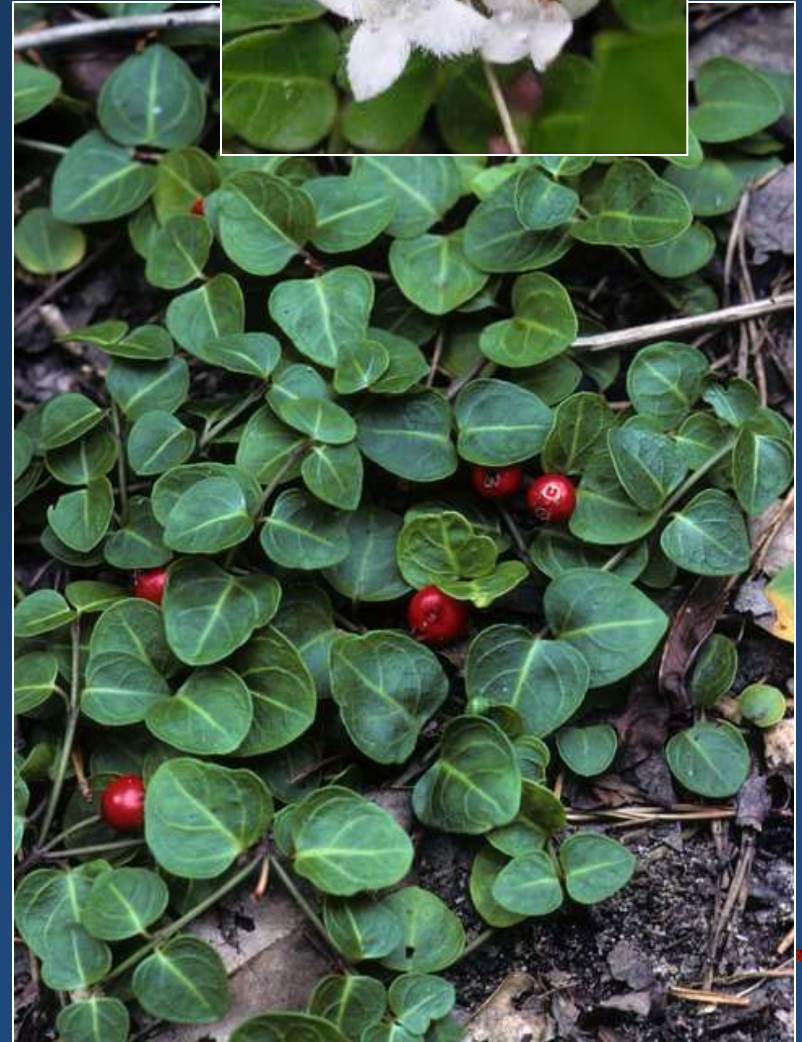
- Native throughout NC
- Tough, long lived clumping perennial
- Pale blue flowers in spring loved by bees
- 1 to 2' tall and wide
- Glossy green foliage, turns clear yellow in the fall
- Sun to part shade, wet to well drained soil



Partridge Berry

Mitchella repens

- Native throughout NC
- Evergreen creeping perennial
- Small white flowers in spring
- Red berries fall and winter – birds!
- Shade and well drained soil
- Drought tolerant once established



Butterfly Weed

Asclepias tuberosa

- Native throughout NC
- Tough clump forming perennial
- Vibrant orange flowers summer – many pollinators
- Sun to part shade
- Well drained soil
- Very drought tolerant
- Larval host plant for the Monarch butterfly



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 loomisii



Pycnanthemum tenuifolium

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 Plains
- Grows well in sun, wet to well drained soils
- Clump forming perennial 5'-8' tall, and 5' wide
- Fall blooms - Excellent nectar source for butterflies
- Winter seed - birds
- *H. floridanus* = Swamp Sunflower, rhizomatous



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



American Beautyberry

Callicarpa americana

- Native throughout 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

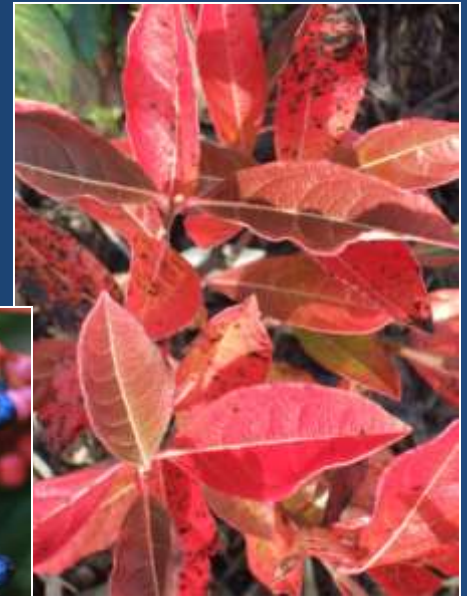


Rustic Sphinx Moth

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

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'

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

Coming Soon!

- Extension Gardener Handbook
Native Plants Chapter
 - What is native? Why plant?
 - Misconceptions
 - Landscaping with natives
 - Challenges
 - NC plant communities - overview
- <http://content.ces.ncsu.edu/extension-gardener-handbook/>



Cross Vine,
Bignonia
capreolata

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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Plants Grow Plants Buy Plants

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](#)

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!

- **NC Botanical Gardens,**
Chapel Hill

- <http://ncbg.unc.edu/>

- [Fall Plant Sale](#) – Oct. 2-3!

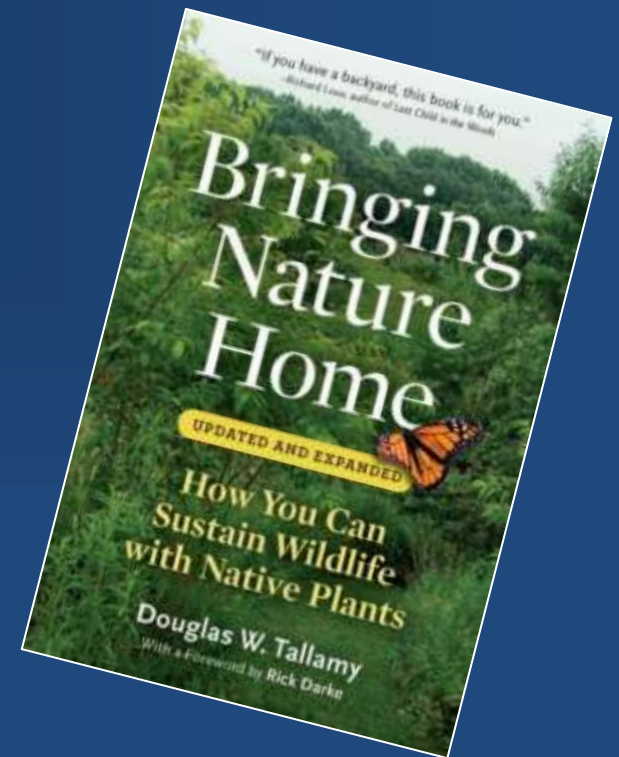
- **NC Native Plant Society**

- <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?

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