Returning NC Native Plants to Piedmont Landscapes

Charlotte Glen,
Statewide Coordinator-Extension Master Gardener Program,
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
Stay Connected!
Subscribe to NC State EMGV Listserv

go.ncsu.edu/subscribe-emgv-listserv
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”
Native is meaningless without location!

Think ecoregion, not political boundaries

Greatest benefit: choose plants from local ecoregion

Ecoregions of North America
Level III: Peidmont
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.
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
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

Parking lots are a graveyard for red maple

Gloomy Scale
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
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*
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](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

‘Forest Pansy’, ‘Merlot’, ‘Burgundy Hearts’

‘Hearts of Gold’, ‘Rising Sun’

‘Royal White’
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
‘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**  
*Illex 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*
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
- Deer resistant
- To 2' tall and wide
- Sun to part shade, wet to well drained soil
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
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

‘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!
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/
Plant Profiles:

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

http://www.protectpollinators.org

Visit the Pollinator Paradise Garden in Pittsboro!
Learn More!

- **NC Botanical Gardens, Chapel Hill**
  - [http://ncbg.unc.edu](http://ncbg.unc.edu)

- **Duke Gardens, Blomquist Garden of Native Plants**
  - [http://gardens.duke.edu](http://gardens.duke.edu)

- **NC Native Plant Society**
  - [http://www.ncwildflower.org](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