Plants for Living Landscapes

Class 1

- Define living landscapes
- The role of native plants
- Explore herbaceous plants: perennials, grasses and groundcovers

Class 2 – Next Week

- Explore woody plants: trees, shrubs, vines
What are living landscapes?

Managed landscapes that:

- Sustain people, pets and wildlife
- Require few inputs once established
- **Support local ecosystem health**
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 Healthy Ecosystems, 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 adapted to feed on specific plants
- Plants with which they share an evolutionary history
- Plants native to the same region
- Plants they cannot survive without

Asclepias are the only plants Monarch caterpillars can feed on (butterflyweed, milkweed)
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 natural communities they replaced

- Not able to support healthy ecosystems
The Good News

- What you plant in your landscape can make a difference
- Increasing the number of native species in your yard and neighborhood supports local ecosystem health

Support Monarchs – Plant Asclepias!
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 - Part of the local ecosystem
- Should support other species
- Should not require excessive resources

Hydrangea: Pretty but flowers are sterile, not drought tolerant
A New Paradigm

- Select landscape plants based upon traditional factors:
  - Appearance
  - Performance
  - Adaptation to site conditions
- **PLUS** ability to sustain native species and support ecosystem health
New Paradigm: Living Landscapes

- Not dominated by lawn/turf
- Home to many different plant species, many native to local region
- Replicate natural communities - have layers
What is 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**”
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.
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
Congeners

- Plants in same genus
- For example, Blue Star: 
  - *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
Native Range

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
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
Natives for Living Landscapes

Things to consider:

- **Adaptability**
  - Some natives from specialized habitats (soils, hydrology)
  - Not able to adapt to typical landscape conditions
  - Or difficult/not economical to propagate

Lady Lupine, *Lupinus villosus*
Things to consider:

- **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”

- **Spreading tendencies**

Golden Alexanders
*Zizia aurea*
Some natives may be too vigorous for smaller 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

*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’
Many natives are great choices for 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
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**
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
Perennials

- Critical nectar and pollen source for pollinators and beneficial insects

**Most benefit:**
- Plan for something to be in bloom spring-fall
- At least 3 different species in bloom each season
- Plant in groups, 3+ of each species

Blossoms with many small flowers clustered together are the richest nectar plants.
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
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
Trailing Phlox

*Phlox nivalis*

- Evergreen, mat-forming
- Blooms spring
- Sun – light shade
- Well drained soil
- One of several Phlox native to SE
Woodland Phlox,
*Phlox divaricata*

Narrow-leaf Carolina Phlox

*Phlox carolina* var. *angusta*
Woodland Stonecrop
*Sedum ternatum*

- Part – full shade
- Well drained soil – native to rocky crevices
- 3”-6” tall
- Blooms in spring
- Evergreen, loose mat
Foamflower

*Tiarella wherryi*

- Light – part shade
- Moist, well drained soil
- Evergreen clumps
- Spring flowers, 1’
- Heartleaf foamflower - *Tiarella cordifolia* – spreading groundcover
- Many cultivars are available (both species)
Partridge Berry
*Mitchella repens*

- Evergreen creeping perennial
- Shade, well drained soil
- Pairs of small white flowers in spring
- Red berries fall and winter – birds!
- Drought tolerant once established
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
Congener: Arkansas Blue Star

- *Amsonia hubrichtii*
- 3’ x 3’
- Sun
- Long lived
- Flowers in spring
- Yellow autumn color
- Attractive, ferny foliage all season
- Pollinators love it!
Indian Pink
*Spigelia marilandica*

- Light - part shade
- Moist, well drained soil
- 1-2’ tall
- Flowers late spring
- Cut back after flowering for a second bloom
- Hummingbirds love it!
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
Baptisia alba
‘Purple Smoke’

‘Carolina Moonlight’
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*

- Sun to part shade
- Well drained soil
- Very drought tolerant
- 2-3’ tall
- Late to emerge in spring
- Orange flowers summer – attract many pollinators
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 native to NC
- 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
Ironweed

*Vernonia noveboracensis*

- Purple flowers, late summer-fall
- 5’ – 8’ in flower
- Sun to light shade, wet to moist or well drained soil
- Attracts butterflies
- Great for natural areas and pond’s edge – spreads!
Rough Stemmed Goldenrod

- *Solidago rugosa*
- cultivar ‘Fireworks’
- Grows 3’-4’ high and wide
- Sun to part shade, moist or well drained soil
- Blooms late summer - nectar for butterflies and many other pollinators
Wreath Goldenrod

Solidago caesia

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

- Many native aster species
- Most need sun
- Pollinators love them!
- **Blue Wood Aster, Symphyotrichum cordifolium**
  - Shade tolerant!
  - Moist-dry soil
  - 2-3’ tall
  - Native statewide
Aromatic Aster

- Symphiotrichum oblongifolium
- Late blooming – Oct/Nov
- Mounding habit
- ‘October Skies’, 2’ x 3’
- ‘Raydon’s Favorite’, 3’ x 4’
- Sun, well drained soil
Native Grasses

- Many do best in a meadow setting
  - Little Blue Stem
  - Broomsedge
  - Indian Grass
- In landscape, can become large and floppy
- Competition keeps them compact in the wild
Switch Grass
*Panicum virgatum*

- 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.
Muhly Grass
*Muhlenbergia capillaris*

- 4’ tall in bloom, 3’ x 3’ mound
- Blooms late fall
- Sun, well drained soil
- Cut back in late winter, before new growth begins
River Oats
*Chasmanthium latifolium*

- Will grow in sun or shade
- Wet to average soil
- Attractive seed heads in winter
- Self seeds
Ferns!

- Many great native ferns!
- Most need moist soil
- Large, clumping ferns
  - Cinnamon Fern
  - Royal Fern
- Evergreen fern
  - Christmas Fern
- Spreading ferns
  - Sensitive Fern
  - Netted Chain Fern

Cinnamon Fern grows 3’ tall in sun or part shade and moist soil
“A plant that has fed nothing has not done its job”

D. Tallamy, *Bringing Nature Home*
Next Week:

- Woody plants
  - Same time, same place!
  - Registration closed

- Piedmont Lawns and Lawn Alternatives
  - Tues., April 25, 6:30 – 8:30 pm
  - Wed., April 26, 10:00 – noon
  - Registration closes April 21

Cross Vine, *Bignonia capreolata*
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!**

![Cardinal flower - Lobelia cardinalis](image)
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 Paradise Garden
carolinapollinatorgarden.org
Chatham Mills, Pittsboro
Learn More!

- **NC Botanical Gardens, Chapel Hill**
  - [http://ncbg.unc.edu](http://ncbg.unc.edu)
  - Spring plant sale, April 29

- **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
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Review slides:
http://go.ncsu.edu/nativeplants