Rain Garden Plant Selection

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Rain Garden Plant Function

- Nutrient and some heavy metal uptake
- Transpiration
- Enhance infiltration
- Soil stabilization
- Provide wildlife habitat – pollinators and beneficial insects
- Provide aesthetic appeal
Plants suitable for rain gardens...

- Tolerate periods of saturated soil, yet also thrive under drier conditions
- Persistent, long lived
- Low Maintenance
- Do not require fertilization or irrigation once established

Texas Star, *Hibiscus coccineus*
Native Wetland Plants

- Tolerate wet conditions – many also tolerate intermittent drought
- Accustomed to our climate and soils
- Typically low maintenance
- Beautiful selections
- Caution: some spread vigorously, e.g. Hardy ageratum
Hardy Ageratum, *Conoclinium coelestinum*
Native spreading perennial with vigorous rhizomatous roots – will quickly overtake other plants
Plants not suitable for rain gardens...

- Do not like “wet feet”
  (eg. Flowering Dogwood)
- Are susceptible to root rot
  (eg. Non native Azaleas)
- Not drought tolerant
  – Unless you plan to
    water during dry spells
Avoid Invasives!

North Carolina Native Plant Society

Invasive Exotic Species List

NC Native Plant Society – Invasive Exotic Plants in NC – 2010

http://www.ncwildflower.org/invasives/list.htm
Rain Garden Design

• **Minimum size depends on watershed**
  – Can plant outside of excavated area

• **General location determined by stormwater flow**

  Intercept stormwater before it leaves the landscape
Avoid the “rain garden that fell from the sky” look
Blend in with existing plantings and topography
If rain garden is “on its own”, make it large enough to be a landscape feature, in scale with size of yard.
Design with maintenance in mind –
Would it have been better to extend this rain garden out to the sidewalk?
Rain Garden Planting Design

• Rain gardens can be any shape
  – Work with contour of site

• Groups of plants look better than 1 of this, 1 of that

• Generally, taller plants in middle or towards back
Simple planting plan incorporating:
stone, mass plantings of grasses, and accent trees

Can also use turf in rain gardens – Bermuda is best turf for rain gardens
More complex planting plant incorporating shrubs and several types of perennials
Dense plantings of grassy plants around berm and edges look good, stabilize the edge, help filter debris, and keep mulch from washing out.
Plant Spacing

• Depends on growth habit of plant (height, width, overall shape)
• Allow enough space for plants to reach mature size
  – Slight overlap for full look
  – Just touching or space in between for less crowded look
Plant Spacing

- Spacing measured from center of one plant to the center of the next (not the edge)
- General planting guide (Note: Read plant label for spacings):
  - 1’- 3’ apart for perennials
  - 2'-3' apart for most grasses
  - 3'-5' apart for most small to medium shrubs
  - 6'-8' apart for larger shrubs
  - For trees use mature size

If these shrubs grow 3’ wide and you want them to meet at maturity, space 3’ apart from center of one shrub to center of next
Good planting technique

- Dig a hole at least twice as wide as root ball or container
- Same depth as root ball
- Top of root ball level with or slightly above soil level
Plant correctly

Tight roots may not grow out properly

Loosen roots before planting
Do you need to fertilize???
Check Soil pH

- **Soil test!** Soil pH affects nutrient availability
  - Can limit root growth under extremely acidic conditions
  - Our soils are typically acidic, as is rain water

- Also check phosphorus index
  - Ideally, less than 50
Choosing Plants for Rain Gardens

• **Key question:** How wet will it be?
• Depends on soil type and hydrology of the site (sand or clay)
• Also depends on location within rain garden
Match Plants to Expected Moisture Level

• **Quick Draining Rain Garden**, drain < 12 hours
  – Need greater drought tolerance, especially in deep sandy soils

• **Standard Rain Garden**, drain in 12 hours - 3 days
  – Plants tolerant of moist soil and “wet feet”

• **Wetland Garden**, drain > 3 days
  – Plants tolerant of extended flooding
Rain Garden Wetness Zones

• LOW
  – pooling area, wettest zone
  – Most careful plant selection

• MIDDLE
  – sloped area
  – intermittently wet with flooding then dry
Rain Garden Zones

- **HIGH**
  - Outer edge and surrounding area
  - May experience brief overflow but not standing water
  - Can use any plants adapted to site conditions
  - Planting in and beyond this area will help garden blend into larger landscape
Plant selection is most critical in deeper/longer ponding areas

Sandy Soil = drought tolerance most important
Extend plantings beyond the excavated area to broaden plant selection
Plants for Rain Gardens in Central NC

- Trees
- Shrubs
- Perennials
- All for sun to part shade
- Natives and non-invasive non-natives
- Commercially available
Match Plants to Expected Moisture Level

- Plants suited to **quick draining** rain gardens (wet < 12 hours) good for **HIGH** areas
- Plants suited to **standard** rain gardens (wet 12 hours - 3 days) good for **LOW** and **MIDDLE** areas
- Plants suited to **wetland** gardens (wet > 3 days) best in **LOW** areas
Trees in Rain Gardens

- Add height
- Extensive root systems
- For small rain gardens, 1 small tree often enough
- Use in combination with shrubs and perennials
- Or trees only for a low maintenance garden
Trees in bioretention cells underplanted with grasses and sedges
River Birch

*Betula nigra*

- Native
- 40’ x 30’
- ‘Heritage’ older variety, ‘Duraheat’ newer with better leaf spot resistance
- Dry, standard, wetland
Red Maple
*Acer rubrum*

- Native
- Grows 40’-60’ x 40’-60’
- Standard, Wetland
- Cultivars:
  - ‘October Glory’
  - ‘Red Sunset’

Blooms (top)
Seeds (bottom)
Red Maple foliage
Redbud

*Cercis canadensis*

- Native
- Lives ~ 20 yrs.
- Dry, standard (not in ponding area)
- 15’-20’ tall and wide
- Deer love it!
Redbud Cultivars

‘Forest Pansy’
‘Merlot’
‘Burgundy Hears’

‘Hearts of Gold’
‘Rising Sun’
Sweet Bay

*Magnolia virginica*

- Semi-evergreen tree to 30’, often multi-stemmed
- Native
- Fragrant flowers, late spring
- Standard, wetland
Upright habit; Fall seeds great for birds
Fringetree

*Chionanthus virginicus*

- To 20’ x 20’
- Standard, wetland
- Fragrant blooms in spring
- Deer love it!
Yaupon

*Ilex vomitoria*

- Native
- Weeping, upright, and dwarf (3’-4’ tall) forms available
- Red berries on weeping and upright forms
- Average to dry
Shrubs in Rain Gardens

- Most moisture tolerant shrubs are deciduous
- Plant **evergreens** in high zones and outer edges for winter interest
- Too many shrubs may look overgrown

Too many shrubs – planted too close together
Beautyberry
*Callicarpa americana*

- Native
- 6’ x 6’ if cut back to 1’ every year in Feb/March
- Quick, standard
Sweat Bee

Rustic Sphinx Moth
Virginia Sweetspire
Itea virginica

- Native
- Standard, wetland
- Suckering roots
- Cultivars:
  - ‘Henry’s Garnet’, 4’-6’ x 4’-6’
  - ‘Little Henry’, dwarf
    - 3-4’ x 3-4’
- Deer Love It!
Itea flowers
Possumhaw Viburnum
Viburnum nudum

- Native
- 6-10’ tall, 4–8’ wide
- Standard, wetland
- Cultivars: ‘Winterthur’ and ‘Brandywine’
Snowberry Clearwing Moth
Sweet Pepperbush

*Clethra alnifolia*

- Native
- 4’-6’ tall and wide
- Cultivars:
  - ‘Hummingbird’, ‘Sixteen Candles’, dwarf white, 3’ x 6’
  - ‘Ruby Spice’, upright pink, 8’ x 5’
- Very fragrant, suckering roots
- Quick, standard
Clethra ‘Sixteen Candles’
Grows 3’ - 4’ tall and wide

‘Ruby Spice’ – pink flowers

fall color
Buttonbush
*Cephalanthus occidentalis*

- Native
- 6’ x 6’
- Standard, Wetland
- Cut back to 1’ each year in March – or will grow to 12’
- White flowers in summer
- Late to leaf out in spring
Winterberry
*Ilex verticillata*

- Native
- Standard, wetland
- 6’ – 8’ tall and wide
- Cultivars more compact, 3-4’:
  - Berry Poppins
  - Red Sprite
  - Little Goblin
- Must plant male pollinator
  - Mr. Poppins
  - Jim Dandy
Spicebush

*Lindera benzion*

- Native
- 4’-6’ tall and wide
- Small yellow flowers in early spring
- Red berries in fall on female plants
- Standard, wetland
Spicebush Swallowtail
Inkberry
*Ilex glabra*

- Native
- 4’-5’ x 3’-4’
- Evergreen
- Quick Draining, Standard

‘Shamrock’
Perennials and Grasses in Rain Gardens

• For color and seasonal interest
• Most dieback in winter – cut back after frost
• Grasses add texture and are tough!
• Flowers provide food and habitat for beneficials and pollinators
Bluestar

**Amsonia tabernaemontana**

- Native
- Grows 1 to 2' tall and wide
- Cut back after flowering to prevent seeding
- Standard, wetland
- For Quick, plant Amsonia hubrichtii
Fall Color
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 australis*
White Fals Indigo, 
*Baptisia alba*
‘Purple Smoke’

‘Carolina Moonlight’
Blue Flag Iris, *Iris virginica*
Native
2’-3’
Standard, wetland

Siberian Iris, *Iris sibirica*,
not native

Yellow Flag Iris, *Iris pseudacorus*,
is not native and is potentially invasive!
Don’t plant!
Black Eyed Susan
*Rudbeckia fulgida*

- Native
- Yellow flowers all summer, 3’ tall
- Quick, standard
- Cultivar: ‘Goldstrum’ most common
- Deer love it!
Daylilies

*Hemerocallis* hybrids

- Not native
- Quick, standard
- 100’s of varieties!
- 1’ to 4’
- Dwarf rebloomers:
Rain Lilies
Zephyranthes

- Not native
- Evergreen foliage
- 1’ tall
- Standard, wetland
- Several species and selections – white, pink, yellow, apricot
- Z. candida – white
- Hardy to zone 7
Rain Lilies

Labuffarosea

Grandjax

Ajax
Seashore Mallow
*Kosteletskyala virginica*

- Native
- 4’-5’ tall
- Standard, wetland
- Butterflies love it!
- Late to emerge in spring
Rose Mallow
*Hibiscus moscheutos*

- Native
- 4’-6’ tall and wide
- Standard, wetland
- Many cultivars and hybrids, ‘Disco Bell’ - seed strain
- Deer?

Red Star, Texas Star
*Hibiscus coccineus*

Red flowers, more finely cut leaves, less bothered by Jap. Beetles and caterpillars
Swamp milkweed
*Asclepias incarnata*

- Native
- 3’ -4’ tall and wide
- Spring/early summer flowers, pink or white
- Sun to part shade
- Standard, wetland
- Monarchs! Attracts many pollinators
Joe Pye Weed

- Native
- Standard, wetland
- *Eutrochium dubium*
  - 4’-5’ tall x 3’-4’ wide
  - Eastern half of NC
- *E. fistulosum*
  - 5’-8’ x 3’-4’
  - More common piedmont
- *E. purpureum and E. maculatum* in Mountains
Cardinal Flower
*Lobelia cardinalis*

- Native
- Height: 3’
- Standard, Wetland
- Do not mulch over evergreen leaves in winter
‘Fireworks’ Goldenrod

*Solidago rugosa*

- Native
- 2’-3’ tall and wide
- Pollinators love it!
- Standard
Panic Grass,
Switch Grass

*Panicum virgatum*

- Native
- Quick, standard
- ‘Shenandoah’ ‘Prairie Fire’, 3’ x 2’, burgundy leaves
- ‘Northwind’, 5’ x 2’, upright
- ‘Cloud Nine’, large, 8’ x 6’, strong stems
River Oats

Chasmanthium latifolium

- Native
- 3’-4’
- Self-seeds
- Standard, wetland
Muhly Grass
*Muhlenbergia capillaris*

- Native
- 4’ tall in bloom, 3’ x 3’ mound
- Dry to average
- Semi-evergreen, but best if cut back in winter
Sweetflag
*Acorus gramineus*

- Not native
- 8” – 12”, evergreen
- ‘Ogon’ – gold leaves
- Great for edges and underplanting
- Standard, Wetland
- *Acorus calamus* – is native, taller, green leaves
**Juncus** (Rush)

*Juncus effusus,*
Common rush

- Native
- 3’ x 2’
- Semi-evergreen
- Grass like plant
- Standard, wetland – prefers constant moisture
Juncus in bioretention
Sedges – *Carex* species

- Many native species available from wetland nurseries
- Non native species sold at many nurseries
- Most need constant moisture and prefer afternoon shade

*Carex crinita*, Fringe Sedge

- 3’ tall, semi-evergreen
- Standard, wetland
Ferns

- Many native ferns for moist soils
- Most prefer part-full shade

**Cinnamon Fern**  
- *Osmunda cinnamomea*  
  - Tolerates full sun if constantly moist  
  - 3’-4’ x 2’-3’

**Sensitive Fern**  
- *Onoclea sensibilis*  
  - Spreads  
  - 2’-3’ tall

**Standard, wetland**
Need more plant info? Plants Database

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