



COLOR IN THE SUSTAINABLE LANDSCAPE

Dr. Ellen Vincent

Clemson University Environmental Landscape Specialist

SCNLA Annual Conference

07 February 2013

COLOR THEORY & SUSTAINABILITY

- Color Theory
 - Color wheel
 - Color harmony
 - Color context
- Sustainability
 - Definition
 - Sustainable Sites Initiative
- Plants offering ecosystem benefits and strong color

COLOR THEORY : ITTEN

Johannes Itten (1888-1967)

“One of the greatest teachers of the art of color”

-Faber Birren, (Itten, 1970, p. 6)

1888- Born in Switzerland

1913- Studied in Stuttgart

Fascinated by color-he saw relationships between music and color and gave early attention to abstract color expression in geometrical paintings.

1916-1919- Opened his own school in Vienna

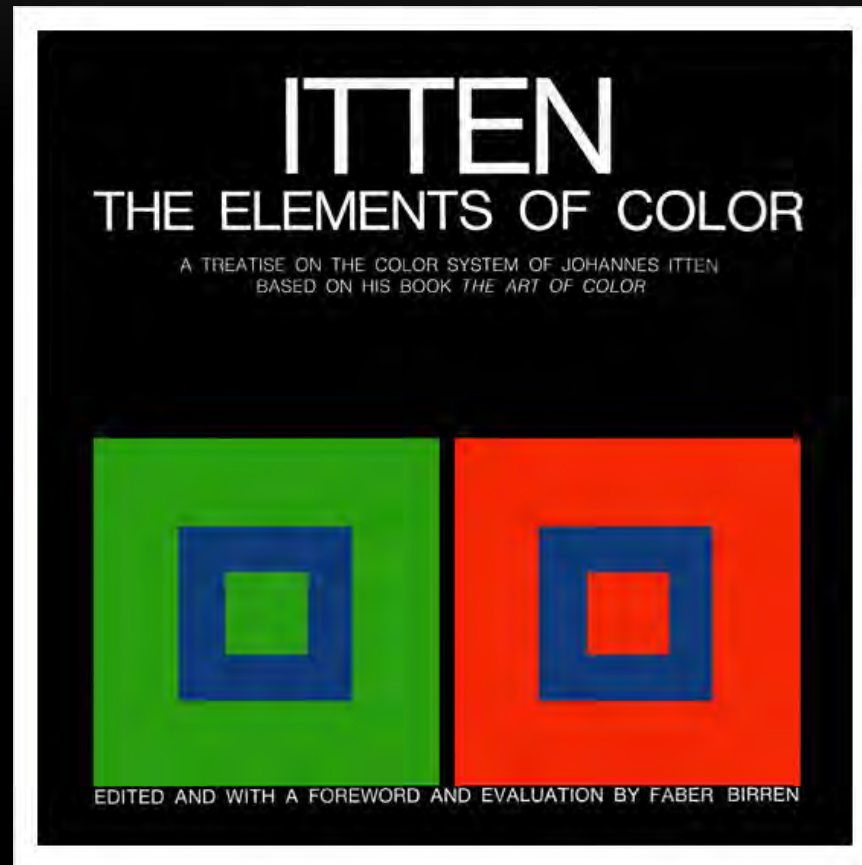
1919- joined the Bauhaus (arts and architecture designers) founded by Walter Gropius



Photo 1 : <http://kaufmann-mercantile.com/images/Johannes-Itten.jpg>

Photo 2 : <http://www.johannes-itten.com/images/artist/2775.jpg>

COLOR THEORY



Available from
Amazon.com used
for \$250 or Kindle
for \$40

COLOR THEORY

Student - “In the realm of aesthetics, are there general rules and laws of color for the artist, or is the aesthetic appreciation of colors governed solely by subjective opinion?”

Itten - “If you, unknowingly, are able to create masterpieces in color, then un-knowledge is your way. But if you are unable to create masterpieces in color out of your un-knowledge, then you ought to look for knowledge.”

- “Doctrines and theories are best for weaker moments. In moments of strength, problems are solved intuitively, as if of themselves.”
- Close study of the great master colorists has firmly convinced me that all of them possessed a science of color.” (Itten, 1970, p. 7).

Itten, J. (1970). *The elements of color*, NY: Van Nostrand Reinhold Co.

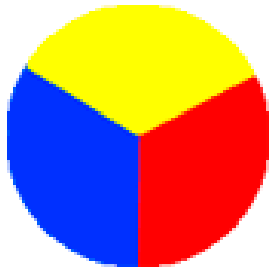


COLOR WHEEL

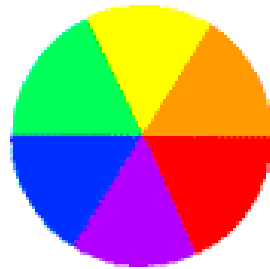
Used in art



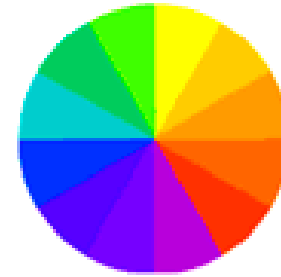
COLOR WHEEL



Primary Colors



Secondary Colors



Tertiary Colors

Primary colors	Secondary	Tertiary
Red, blue, yellow	Green, orange, purple	Yellow-orange, red-orange
		Red-purple, blue-purple
		Blue-green, yellow-green

ITTEN - HARMONIOUS PROPORTIONS



A little red
with a great
deal of green
makes the
red highly
active

(Itten, 1970, p. 60-
61)

Photo: http://1.bp.blogspot.com/_9hdptnTIDQQ/TUXuk5oe6FI/AAAAAAAAAzU/AwBVMnlGefw/s1600/itten3.jpg

Itten, J. (1970). *The elements of color*, NY: Van Nostrand Reinhold Co.

COLOR HARMONY

- Pleasing to the eye.
- Creates an inner sense of order and balance in the visual experience.
- When not in harmony the experience is boring or chaotic.



Felicity Henderson design

Photo by Ellen Vincent

COLOR HARMONY

- When not in harmony the experience is chaotic or boring.



http://www.google.com/imgres?q=plants+too+close+together&start=16&num=10&hl=en&client=firefox-a&rls=org.mozilla:en-US:official&gbv=2&biw=1440&bih=707&tbnid=uUJnyuD2upNFnM:&imgrefurl=http://www.herbcompanion.com/in-the-herb-garden/for-your-garden-common-garden-mistakes.aspx&docid=nN-Ga-KNUwKqOM&imgurl=http://www.herbcompanion.com/uploadedImages/Blogs/In_the_Herb_Garden/Herb%252520Garden%252520Photo.jpg&w=500&h=375&ei=7SUST-bANsq0sQLdhtjvAw&zoom=1&iact=hc&vpx=528&vpy=65&dur=25&hovh=194&hovw=259&tx=121&ty=99&sig=105866139933167536295&sqi=2&page=2&tbnh=151&tbnw=201&ndsp=24&ved=1t:429,r:8,s:16



<http://1.bp.blogspot.com/-wNZCiKB2o3o/TsRUvMGmFdl/AAAAAAAAADXk/NKDirTjtV9Q/s1600/Mid%2BCentury%2BModern%2BLandscaping%2B4.JPG>

COLOR HARMONY

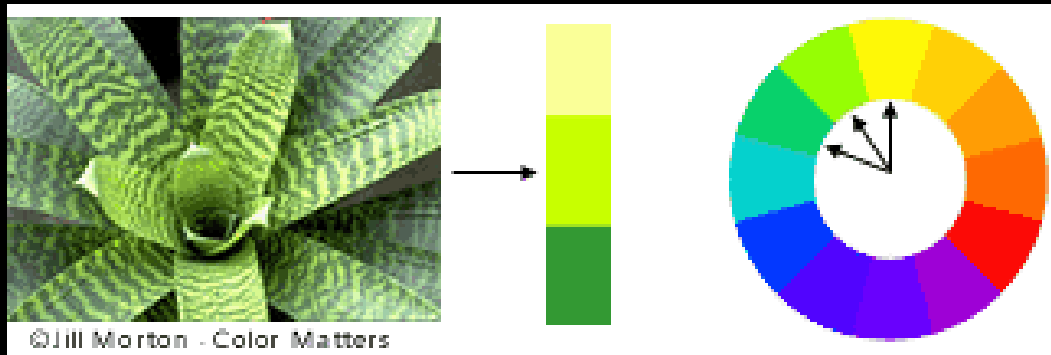
- Color harmony delivers visual interest and a sense of order



Photo by Ellen Vincent

COLOR HARMONY

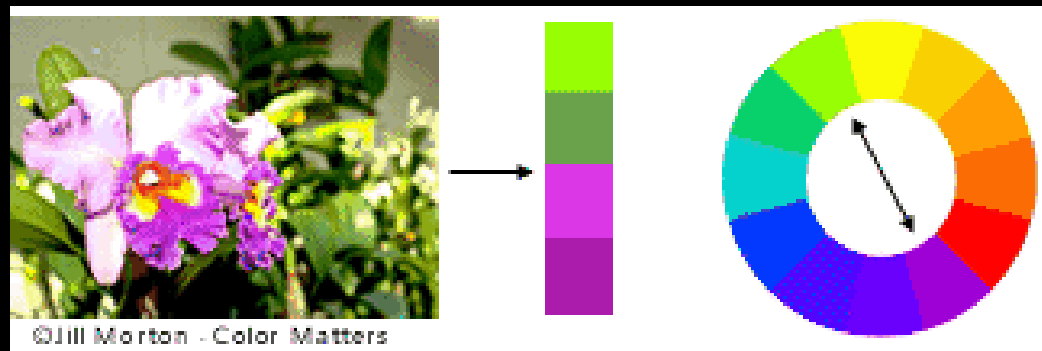
Formula 1: Analogous colors



- Analogous colors are any three colors which are side by side on a 12 part color wheel, such as yellow, yellow-green, and green. Usually one of the three colors predominates.

COLOR HARMONY

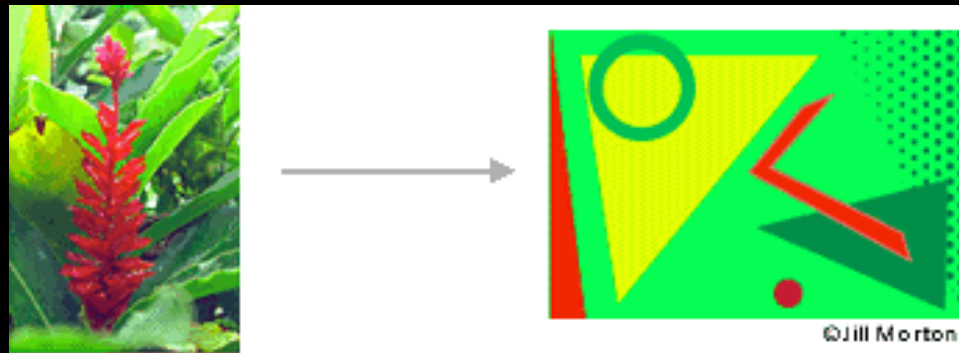
Formula 2: Complementary colors



- Complementary colors are any two colors which are directly opposite each other, such as red and green and red-purple and yellow-green. In the illustration above, there are several variations of yellow-green in the leaves and several variations of red-purple in the orchid. These opposing colors create maximum contrast and maximum stability.

COLOR HARMONY

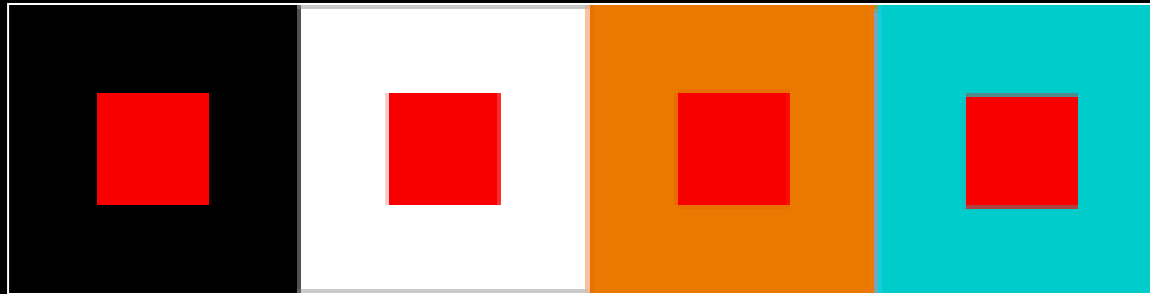
Formula 3: Nature



- Nature provides a perfect departure point for color harmony. In the illustration above, red yellow and green create a harmonious design, regardless of whether this combination fits into a technical formula for color harmony.

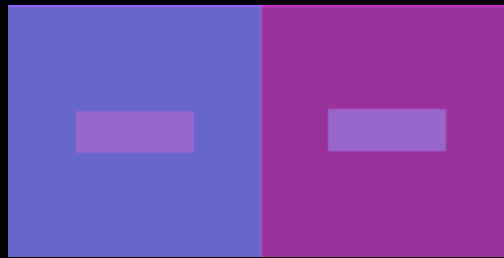
COLOR CONTEXT

Is there a red square that appears larger than the others?



COLOR CONTEXT

How many different colors do you see?



COLOR CONTEXT



RED



<http://www.pictures-of-roses.com/rose-photos/red-rose-picture.jpg>

Global Meanings of Red

- Red is one of the top two favorite colors of all people.
- Red is the most popular color used on flags in the world. Approximately 77% of all flags include red.
- Red is the international color for stop.

The history of languages reveals that red is the first color after black and white. (All languages have words for black and white. If a third hue exists, it is red.)

YELLOW



Global Meanings of Yellow

- In almost every culture yellow represents sunshine, happiness, and warmth.
- Yellow is the color most often associated with the deity in many religions (Hinduism and Ancient Egypt)
- Yellow is the color of traffic lights and signs indicating caution all over the world.

BLUE

- Blue has more complex and contradictory meanings than any other color. These can be easily explained by pinpointing by the specific shade of blue.
- Blue is the #1 favorite color of all people.
- 53% of the flags in the world contain blue.
- Blue is the most commonly used color in corporate identity.
- A dark blue suit is professional business attire.
- Blue jeans are worn all over the world.
- Aristocracy is blue-blooded in all European languages.



<http://www.livinginseason.com/wp-content/uploads/2011/09/big-aster.jpg>

<http://www.colormatters.com/blue>

GREEN



Global Meanings of Green

- Green is universally associated with nature.
- Green symbolizes ecology and the environment.
- Traffic lights are green all over the world.

Designing with Green

- There are more shades of green than that of any other color. Greens range from yellow-greens, such as lime and avocado greens, to those with a blue tinge (such as emerald). Aqua or turquoise are colors that are typically half green and half blue.
- Green is no longer just a color. It's now the symbol of ecology and a verb.

COLOR SCHEMES IN THE LANDSCAPE:



Charleston, SC



Photos by Ellen Vincent

Regents Park,
London

COLOR SCHEMES IN THE LANDSCAPE:



Regents Park,
London



Falls Park,
Greenville, SC



Regents Park,
London

COLOR SCHEMES IN THE LANDSCAPE:



Falls Park,
Greenville, SC



Rock Quarry Park,
Greenville, SC

Photos by Ellen Vincent

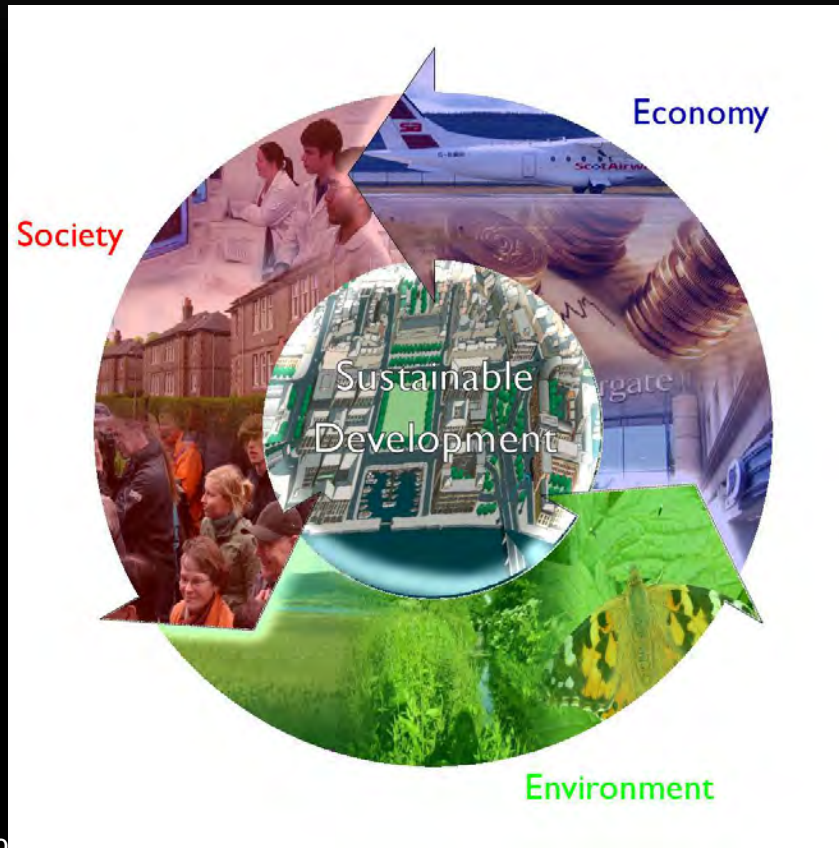
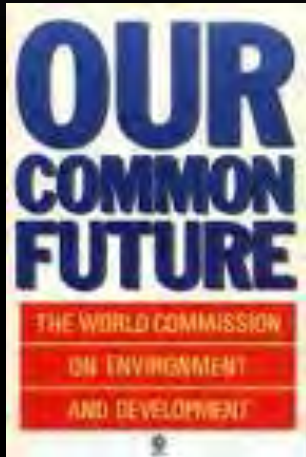
SUSTAINABLE LANDSCAPES

Sustainable development, according to the Brundtland Report, meets the needs of the present without compromising the ability of future generations to meet their own needs (1987, p. 8).



Photo: [images.google.com kidsdreamgym.com](https://images.google.com/kidsdreamgym.com)

THE BRUNDTLAND COMMISSION

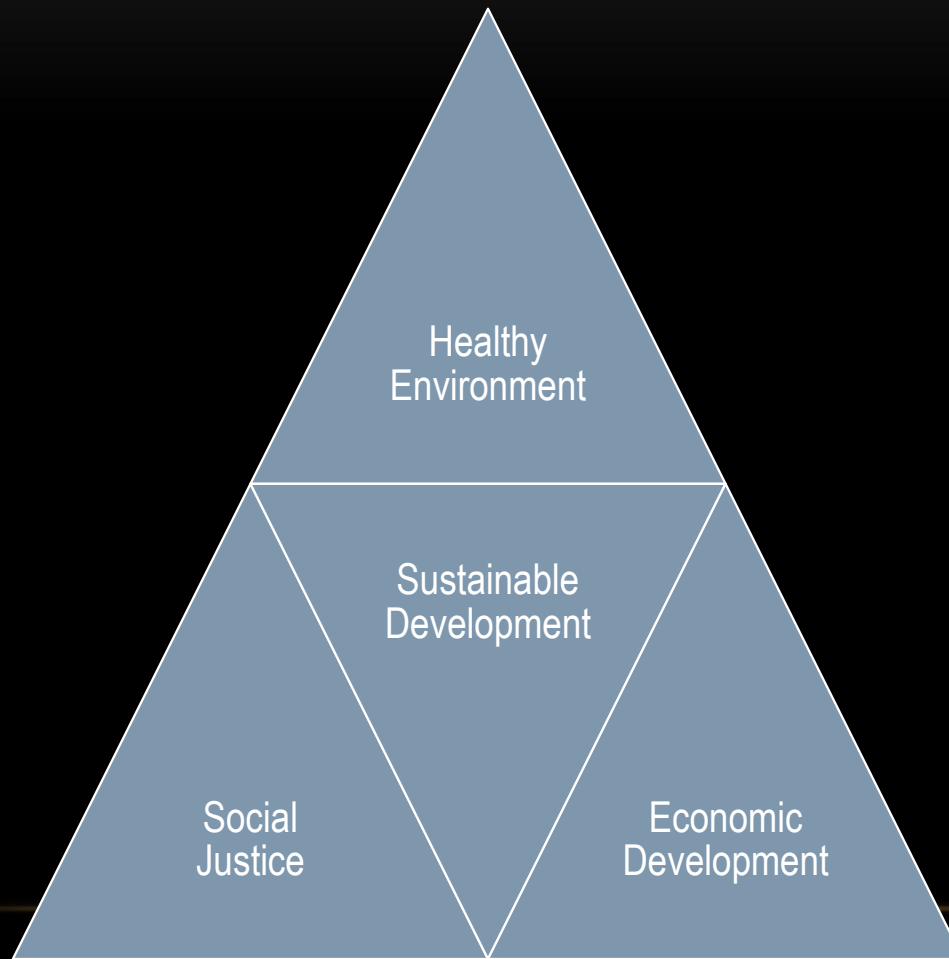


Gro Harlan
Brundtland

://tunza.mobi/wp-
content/uploads/2010/08/Gro-
Harlem-Brundtland.jpg

Book available from
Amazon.com \$.01-16.00

ISSUE TRIAD-1987



SUSTAINABLE SITES INITIATIVE™ PARTNERSHIP

Purpose: To create voluntary national guidelines and performance benchmarks for sustainable land design, construction and maintenance practices.

American Society of Landscape Architects



Lady Bird Johnson Wildflower Center at The University of Texas at Austin



United States Botanic Garden



<http://www.sustainablesites.org/>

1. <http://www.asla.org/>
2. <http://www.wildflower.org/>
3. <http://www.usbg.gov/index.cfm>

SUSTAINABLE SITES INITIATIVE™ (SSI)

- ⦿ Voluntary certification program for commercial businesses
- ⦿ Developmental stage
- ⦿ Will become the landscape component of the U.S. Green Building Industry's LEED® (Leadership in Energy and Environmental Design) certification program.

<http://www.sustainablesites.org>



Photo: Ellen Vincent

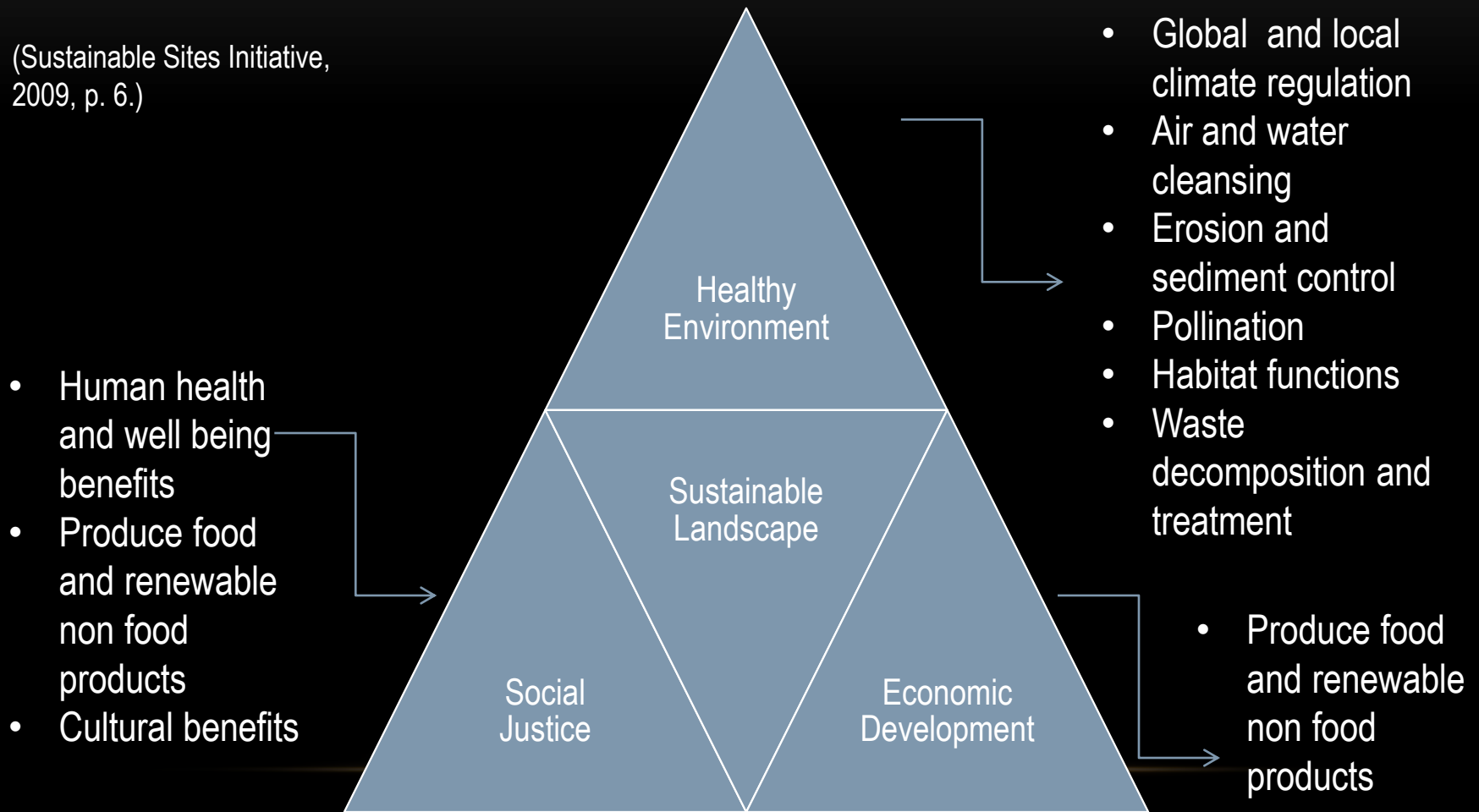
GUIDING PRINCIPLES OF A SUSTAINABLE SITE

- Do no harm
- Precautionary Principle
- Design with nature and culture
- Use a decision making hierarchy of preservation, conservation, and regeneration
- Provide regenerative systems as intergenerational equity
- Support a living process
- Use a systems thinking approach
- Use a collaborative and ethical approach
- Maintain integrity in leadership and research
- Foster environmental stewardship

(Sustainable Sites Initiative, 2009, p. 9.)

ECOSYSTEM SERVICES/BENEFITS -2009

(Sustainable Sites Initiative,
2009, p. 6.)



Sustainable Sites Initiative (2009). *Guidelines and performance benchmarks*. Retrieved from

http://www.sustainablesites.org/report/Guidelines%20and%20Performance%20Benchmarks_2009.pdf/

SSI : FOCUS AREAS

Hydrology

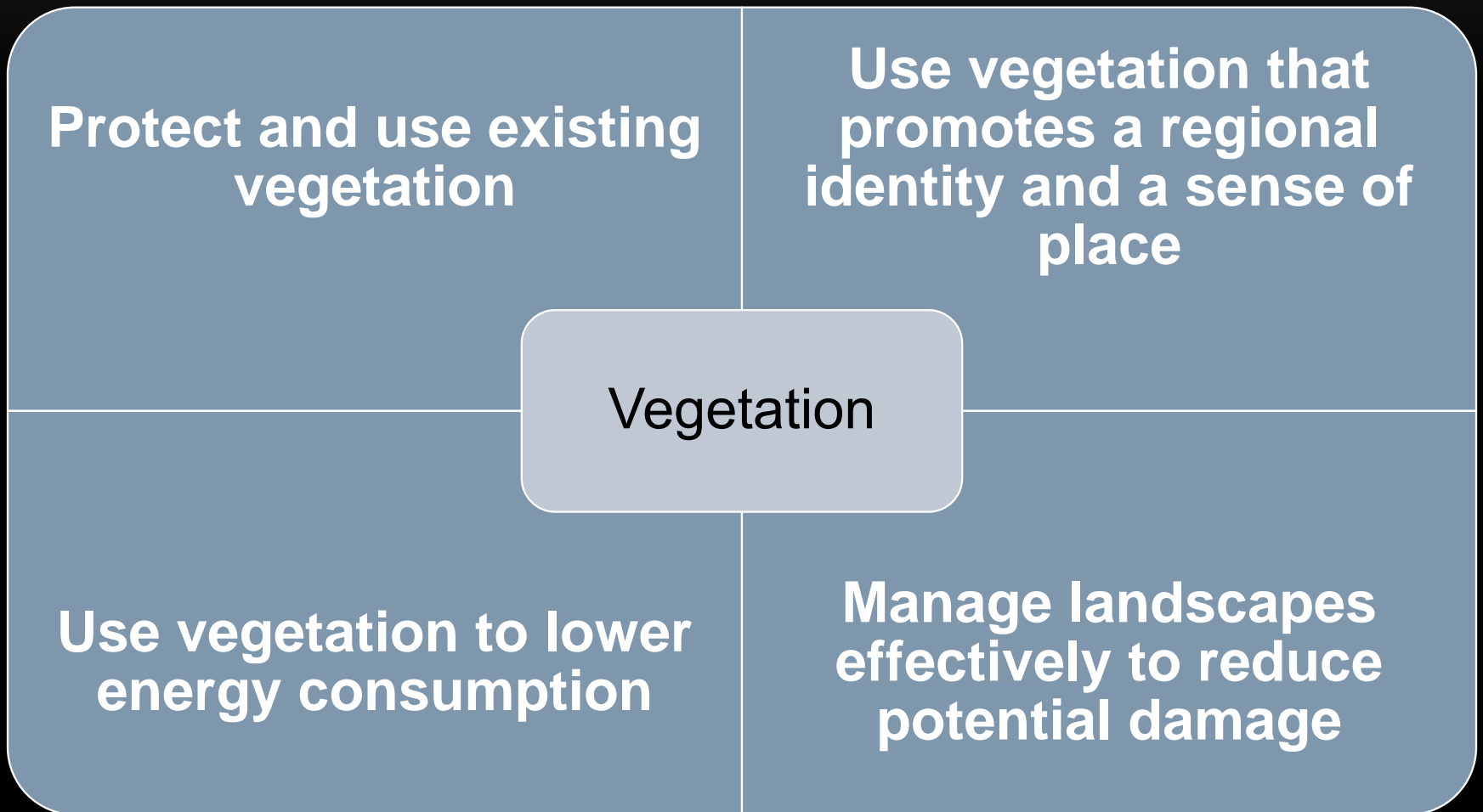
Soils

Vegetation

Materials

Human health
& well-being

SSI FOCUS AREA : VEGETATION



SSI : PILOT PROJECTS

- 150 pilot projects (June 2010-June 2012).
- Projects include residential, open space, educational/institutional, and commercial.
- Feedback from the pilot programs are being used to create *The Reference Guide*, due for release in 2013.

Certification levels (250 total points)

One Star (minimum points 40%):	100
Two Stars (minimum points 50%):	125
Three Stars (minimum points 60%):	150
Four Stars (minimum points 80%):	200

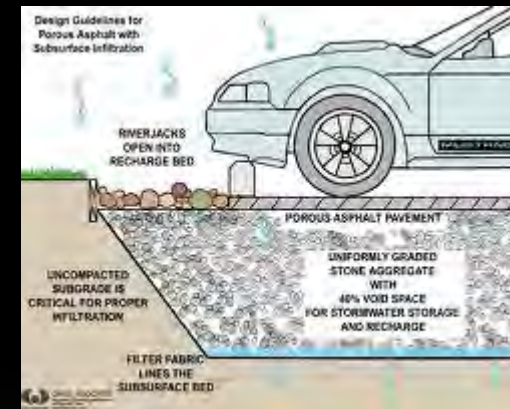
SSI : PILOT PROJECTS

- **Charlotte Brody Discovery Garden at Sarah P. Duke Gardens**
- **Location:**
Duke University, Durham, North Carolina
- **Size & Type of Project:**
0.96 acres, Open Space - Garden / Arboretum
- **Certification Level:**
Two Stars
- **Site Context:**
Urban
- **Former Land Use:**
Greyfield
- **Terrestrial Biome:**
Temperate Broadleaf and Mixed Forests
- **Budget:**
\$950,000



SSI : PILOT PROJECTS - SOUTH CAROLINA

- **Sand River Headwaters Green Infrastructure Project**
Aiken, South Carolina
Project Type: Transportation corridors/Streetscape
Project Team: Center for Watershed Excellence (Clemson University), Clemson University
Description: Watershed restoration by reducing severe erosion caused by stormwater runoff is the focus of this greyfield streetscape project.
- Downtown medians become rain gardens and bioswales to treat stormwater.
- Downtown streets and parking lots reconstructed with pervious concrete and asphalt.



http://www.sustainablesites.org/cert_projects/show.php?id=32/

http://upload.wikimedia.org/wikipedia/commons/thumb/8/8f/Permeable_paver_demonstration.jpg/300px-Permeable_paver_demonstration.jpg

http://www.horsleywitten.com/smartgrowth/LID/regional_planning/LID/new_photos/PorAsph-colored-xsec5-wlogo.JPG

COLOR IN THE LANDSCAPE: PERENNIALS

Achillea millifolium Yarrow

- Native to US, and SC
- Zones: 4-8
- White compact clusters at end of stem late April through July (south)
- 12-36" h x 15-24" w
- Gray-green fernlike fragrant foliage
- Full sun to part shade
- Soil loamy, sandy, well-drained, drought tolerant
- Border, landscape
- Provides value to native bees; conservation benefit - soil stabilizer on banks



COLOR IN THE LANDSCAPE: PERENNIALS

Achillea Red Velvet

- Zones: 4-8
- Deep red 6" clusters with a creamy eye --early summer to early autumn, color doesn't fade
- 18" h x 15-18" w (may spread 3' wide in fertile soil)
- Compact green foliage, upright habit
- Full sun
- Soil loamy, sandy, well-drained, drought tolerant
- Border, landscape, container, cut flower, dried flower
- Deadhead for fast repeat blooms
- Reputed deer resistant, drought tolerant, disease resistant, heat tolerant
- Provides nectar for butterflies



COLOR IN THE LANDSCAPE: PERENNIALS

***Achillea* 'Saucy Seduction' PP#20,782**, bred in Holland and introduced by the British nursery Blooms of Bressingham, part of the Seduction™ series

- Zones: 4-9
- Dark pink-rose fragrant blooms
- Blooms early summer to early fall
- 18-24" h x 24-28" w
- Foliage color gray-med green
- Compact habit, needs deadheading for rapid rebloom
- Full sun
- Soil tolerant, well-drained
- Containers, border, cut flower
- Attracts butterflies, hummingbirds



COLOR IN THE LANDSCAPE: PERENNIALS

Achillea Sunny Seduction[™], PP#20,808 bred in Holland and introduced by the British nursery Blooms of Bressingham, part of the Seduction[™] series

- Zones: 4-8
- Buttery yellow flat topped” clusters with a creamy eye – early summer to early autumn
- 24-30”” h x 24-28” w
- Compact gray green foliage, upright habit
- Full sun
- Soil loamy, sandy, well-drained, drought tolerant
- Border, landscape, container, cut flower, dried flower
- Deadhead for fast repeat blooms
- Reputed deer resistant, drought tolerant, disease resistant, heat tolerant
- Provides nectar for butterflies



COLOR IN THE LANDSCAPE: PERENNIALS

Amsonia tabernaemontana Eastern bluestar

- Native to US, and SC
- Blue-purple blooms, cut back after flowering
- Blooms in spring March-May,
- Attractive tan seed heads in late summer into fall
- 12-36" h x 24-28" w
- Multi-stemmed clumps, narrow oval leaves
- Foliage turns yellow in autumn
- Part shade
- Wet sandy sites in thin woods and on plains
- Border, rain garden
- Flowers are a source of nectar, foliage is a food source for various butterflies, attracts pollinators, milky sap deters predation by deer and other mammals



COLOR IN THE LANDSCAPE: PERENNIALS

Amsonia x Blue Ice

- Zones 4-9
- Dark blue blooms, cut back after flowering
- Blooms in mid spring to early summer
- 15" h, 24" w
- Compact habit, narrow oval leaves turn yellow in fall
- Full sun, part shade
- Moist well drained soils -- tolerates sand & clay soils
- Reputed disease resistant, pest resistant, heat tolerant drought tolerant,
- Border, rain garden



COLOR IN THE LANDSCAPE: PERENNIALS

Amsonia hubrichtii Arkansas blue star amsonia

- Zones 5-9, native to south-central US (AR, OK)
- Light blue blooms, cut back after flowering
- Blooms in late spring to early summer
- 2-3' h x w
- Mounded habit, finely cut feathery leaves
- Fall foliage is “blazing golden yellow”
- Full sun, part shade
- Loam soils, moist, well drained
- Reputed deer resistant, disease resistant, pest resistant, heat tolerant drought tolerant, humidity tolerant
- Border, rain garden, hedge
- Beneficial to butterflies
- 2011 Award winner Perennial of the Year (Perennial Plant Association)



<http://www.waysidegardens.com/amsonia-hubrichtii/p/v1076/>

Native range: http://www.bbg.org/gardening/article/eastern_bluestar

COLOR IN THE LANDSCAPE: PERENNIALS

Aquilegia canadensis Eastern red columbine

- Zones: 3-9, native US, and SC
- Red, pink and yellow showy drooping bell like flowers
2" with backward pointing spurs from early
spring to summer (Feb-July), self seeds
- 20-30" h x 12-24" w
- Green to blue-green colored foliage
- Part shade
- Soil loamy, sandy, well-drained, alkaline (not acid) pH
- Border, landscape, container, shade
- Drought tolerant, heat tolerant, cold tolerant
- Spurs provide nectar and attract long tongued insects and hummingbirds, Seeds consumed by finches and buntings. Larval and nectar source for butterfly Columbine duskywing *Erynnis lucilius*



COLOR IN THE LANDSCAPE: PERENNIALS

***Aquilegia* x 'Cardinal'** Member of Songbird Series bred by Charlie Weddle (Colorado plantsman) and Dr. Ellen Leue

- Zones: 3-9, some native heritage
- Red and white bloom late spring/early summer with upturned bloom
- 18-24" h, 12-24" w
- Gray colored foliage
- Part shade
- Soil loamy, sandy, well-drained
- Border, woodland, meadow, shade
- Provides nectar for butterflies, hummingbirds
- Award of Garden Merit from the Royal Horticulture Society



COLOR IN THE LANDSCAPE: PERENNIALS

Asclepius tuberosa Butterfly weed

- Zones: 3-9, native to US, and SC
- Bloom mid-late summer
- 18-24" h x 36" w
- Full sun, light shade
- Soil well-drained sandy
- Container, border, landscape
- Drought tolerant, deer resistant
- Provides nectar for butterflies, hummingbirds, larval host for Grey Hairstreak, Monarch, Queens butterflies, benefits native bees, bumble bees, honey bees
- Aphids feed on foliage and provide food for ladybugs. Control using soapy water or strong blast of water.



COLOR IN THE LANDSCAPE: PERENNIALS

Baptisia australis Blue wild indigo

- Zones: 4-9, native to US, (NC & GA)
- Blue purple blooms ,late spring-mid summer
- 2-4' h x 3' w
- Foliage turns silver in fall
- Full sun
- Soil acidic but tolerates lime, moist,
well-drained, clay, requires specific
beneficial soil microorganisms
- Border
- Ornamental seed pods in fall
- Benefits native bees
- Toxic to humans, used as dye plant



COLOR IN THE LANDSCAPE: PERENNIALS

***Baptisia* 'Blueberry Sundae'** PPAF (Plant Patent Applied For)

- Zones: 4-9
- Indigo-blue blooms
- Blooms late spring-early summer
- 3' h, 2.5-3' w
- Upright (more compact) habit
- Full sun/part shade
- Soil normal, loamy, well-drained
- Border
- Ornamental seed pods in fall



COLOR IN THE LANDSCAPE: PERENNIALS

***Baptisia* 'Lemon Meringue' PPAF (Plant Patent Applied For)**

- Zones: 4-9
- Yellow blooms on charcoal black stems
- Blooms late spring-early summer
- 3' h, 2.5-3' w
- Upright habit
- Full sun/part shade
- Soil tolerant, well-drained
- Containers, border
- Reputed disease resistant, drought tolerant, heat tolerant, humidity tolerant, pest resistant



COLOR IN THE LANDSCAPE: PERENNIALS

Delosperma Fire Spinner™ Ice plant

- Zones: 5-10, Native to South Africa
- Magenta, orange, white, multi-colored
- Blooms late spring-mid summer
- 1-2" h x 18-24" w
- Groundcover with bright green succulent leaves
- Full sun/part shade
- Soil tolerant, well-drained
- Containers, border, hot dry edges (near sidewalk)
- Attracts butterflies
- Reputed deer resistant, drought tolerant, heat tolerant, humidity tolerant



COLOR IN THE LANDSCAPE: PERENNIALS

Echinacea purpurea Purple coneflower

- Native to US, SC, zones 3-9
- Sun, part-shade
- 2-3' h x 18-24" w
- Rosy-purple flowers rebloom in midsummer to autumn
- Soil well-drained, sandy to fertile
- Nectar source for butterflies and hummingbirds
- Beneficial to native bees (nectar source)
- Not deer resistant



Photos by Ellen Vincent

COLOR IN THE LANDSCAPE: PERENNIALS

Echinacea purpurea 'PowWow Wild Berry'

- Zones: 4-9
- Purple, dark rose, magenta blooms
- Blooms early summer to mid fall
- 20-24" h, 12-16" w
- Foliage dark green
- Compact habit, no deadheading needed
- Full sun
- Soil tolerant, well drained
- Containers, border, cut flower
- Attracts butterflies, birds
- Reputed drought tolerant, heat tolerant, humidity tolerant, pest resistant, disease resistant



COLOR IN THE LANDSCAPE: PERENNIALS

Echinacea 'Solar Flare' PPAF bred by Richard Saul of Georgia

- Zones: 4-8
- Electric red, brown center
- Blooms early summer to mid fall
- 24-36" h, 18-24" w
- Foliage olive green
- Compact habit
- Full sun
- Soil loamy, well drained
- Containers, border, cut flower
- Attracts butterflies, birds
- Reputed deer resistance, disease resistant, drought tolerant, heat tolerant, humidity tolerant, pest resistant



COLOR IN THE LANDSCAPE: PERENNIALS

***Monarda didyma* 'Pardon My Pink' PPAF, introduced by Walters Gardens Bee balm**

- Zones: 4-9
- Bright pink 2.5-3" cluster
- Blooms mid summer to mid fall
- 10-12" h, 18-24" w
- Foliage dark green
- Ultra compact habit
- Part shade to shade
- Clay to sandy soils, loamy, well drained
- Containers, border, cottage garden
- Attracts bees, butterflies, hummingbirds
- Reputed deer resistance, powdery mildew resistance, disease resistant, drought tolerant, heat tolerant, humidity tolerant, pest resistant



COLOR IN THE LANDSCAPE: ORNAMENTAL GRASS

Muhlenbergia capillaris Muhly grass

- Zones: 6-10, native to US, and SC
- Pink-purple blooms late summer to fall
- 3' h x 3' w
- Foliage yellow- green to medium green
- Neat and tidy habit
- Full sun
- Soil loamy, well drained
- Containers, border, hedge, meadow
- High deer resistance



COLOR IN THE LANDSCAPE: ORNAMENTAL GRASS

Muhlenbergia capillaris 'White Cloud'

- Zones: 6-10
- White blooms early fall to mid winter
- 2.5' h x 4' w
- Foliage evergreen
- Compact, more upright than pink muhly
- Full sun
- Soil loamy, well drained
- Containers, border, hedge. cut flower
- Reputed disease resistant, drought tolerant, heat tolerant
- Birds feast on seeds



COLOR IN THE LANDSCAPE: SHRUBS

***Buddleia davidii* Lo & Behold™ 'Blue Chip' PP# 19,991** Introduced by Raulston Arboretum

- Zones: 5-9, species is native to Asia
- Blue lightly fragrant blooms, continuous, not in waves
- Doesn't need deadheading
- Blooms early summer to mid fall
- 2' h & w
- Dwarf habit, compact
- Full sun
- Soil loamy, well-drained
- Containers, border, groundcover
- Attracts hummingbirds and butterflies
- Reputed deer resistance, drought tolerant, heat tolerant



COLOR IN THE LANDSCAPE: SHRUBS

Callicarpa americana American beautyberry

- Zones: 7-11 (Dirr), native to SC
- Clusters of shiny purple (occ. white) fruit in leaf axils in fall
- 3-5' h & w (to 9' high in fertile soils)
- Arching branches, loose habit, fragrant foliage, yellow-green fall foliage
- Part shade
- Soil moist, fertile, sandy-clay loam, well-drained
- Soil reclamation, border, woodland edge, in pines
- Heat tolerant, cold tolerant, defoliates in drought
- Nectar source for birds and butterflies; wildlife food plant-foliage feeds white-tailed deer, mine soil reclamation



COLOR IN THE LANDSCAPE: SHRUBS

Calycanthus floridus Carolina allspice

- Zones: 4-9, Native to SC
- Terminal dark red fragrant blooms April - July
- 6-12' h x 5-6' w, taller in shade
- Foliage glossy aromatic leathery green,
prune after flowering
- Upright habit, deciduous, suckering
- Part shade
- Soil deep loam, moist, adaptable
- Border, hedge, specimen
- Resistant to diseases and insects, may be difficult to transplant, scent varies from fruit to vinegar
- Attracts butterflies



COLOR IN THE LANDSCAPE: SHRUBS

Calycanthus 'Aphrodite'

- Zones: 5-9
- 4" wine red strawberry scented blooms
- Blooms repeatedly early summer to early fall
- 7' h x 5-6' w
- Foliage dark glossy green turning yellow in fall
- Upright habit, fragrant stems, deciduous
- Full sun to part shade
- Soil loamy, dry or moist
- Border, hedge, specimen
- Reputed to be deer resistant, heat tolerant, disease resistant
- Attracts butterflies



COLOR IN THE LANDSCAPE: SHRUBS

X *Sinocalycalycanthus raulstonii* 'Hartlage Wine' (cross between Chinese and native allspice, introduced by Raulston Arboretum)

- Zones: 6-9
- 3" wine red fragrant blooms
- Blooms early summer
- 6' h x 5-6' w
- Foliage dark glossy green turning yellow in fall
- Upright habit, fragrant stems
- Full sun to part shade, full sun requires more moisture
- Soil loamy
- Border, hedge, specimen
- Reputed to be heat tolerant, disease resistant



COLOR IN THE LANDSCAPE: SHRUBS

Caryopteris x clandonensis 'Longwood Blue'

- Zones: 5-9, genus is native to Asia
- Blue lightly fragrant blooms, continuous, not in waves
- Doesn't need deadheading
- Blooms mid summer to mid fall
- 18-24" h x 24" w
- Foliage light green to silver gray
- Upright habit, cut back hard in early spring each year
- Full sun to part shade
- Soil loamy, well-drained
- Containers, border, groundcover
- Attracts hummingbirds and butterflies
- Reputed deer resistant, heat tolerant



<http://www.waysidegardens.com/buddleia-lo-beholdtrade-blue-chip-pp-19991/p/48942///>

<http://www.missouribotanicalgarden.org/gardens-gardening/your-garden/plant-finder/plant-details/kc/b900/caryopteris-x-clandonensis-longwood-blue.aspx>

COLOR IN THE LANDSCAPE: SHRUBS

Hydrangea quercifolia Oak leaf hydrangea

- Zones: 5-9, native to SC
- White, green and purple blooms June-July, prune after flowering
- 3-12' h & w (suckers)
- Foliage dark green, turns orange, red, brown in fall
- Irregular shape, forms mounded colonies
- Part shade, shade
- Soil moist, fertile, well-drained
- Border, naturalized area, woodland edge
- No pest problems, stems break easily



COLOR IN THE LANDSCAPE: SHRUBS

Hydrangea quercifolia 'Little Honey' Plant Patent #15,477

- Zones: 5-9, a sport of dwarf 'PeeWee'
- White, 6-8" blooms June-July,
prune after flowering
- 4' h x 3-5' w
- Foliage emerges golden yellow, turns chartreus by
mid-summer then green. Lvs and stems turn
scarlet in autumn-4-seasons appeal
- Full sun, part shade
- Soil moist, fertile, well-drained
- Foundation, border
- Reputed heat tolerant, drought tolerant



COLOR IN THE LANDSCAPE: SHRUBS

***Hydrangea macrophylla* Twist-n-Shout®** Plant Patent #20,176. Cultivar name: 'PIIHM-1'.

- One of the Endless Summer ® series from Dr. Michael Dirr, the first reblooming lacecap hydrangea
- Zones: 4-9, species is from Asia
- Blue and pink blooms
- Blooms early summer & early fall
- 3-5' h & w
- Foliage dark green, turns orange, red, maroon in fall
- Stems pinkish red
- Mound shaped habit, compact
- Part shade
- Soil loamy
- Containers, border
- Reputed disease resistant, heat tolerant, humidity tolerant, pest resistant



COLOR IN THE LANDSCAPE: SHRUBS

Illicium floridanum 'Pink Frost' PP#21,287, variegated selection of our native evergreen shrub, 'Pink Frost' Florida anise

- Zones: 6-9
- Maroon blooms
- Blooms mid spring
- 6-10' h x 6' w
- Variegated foliage tinted pink in spring
cream edged in summer, total pink in fall
- Upright habit, fragrant stems
- Full sun to part shade, full sun requires more moisture
- Soil loamy
- Border, hedge, specimen
- Reputed to be drought tolerant, deer resistant



<http://www.waysidegardens.com/illicium-floridanum-pink-frost-pp21287/p/48691//>

http://www.plantdelights.com/images/Illicium_floridanum_Pink_Frost.jpg

COLOR IN THE LANDSCAPE: SHRUB ROSES

Rosa Knock Out® Rose Plant Patent #11,836. Cultivar name: 'Radrazz', breeder William Radler, bred from a seedling of R. 'Carefree Beauty' x a seedling of R. 'Razzle Dazzle'

- Zones: 4-9
- Fire-engine red (or lighter cherry-scarlet in hot climates)
- 3" lightly fragrant blooms in waves early summer into fall
- 3' h & w
- Burgundy-violet fall foliage and orange-red hips
- Full sun
- Soil loamy, well-drained
- Containers, border, hedge
- Reputed disease resistant (blackspot), Japanese beetles, leafhoppers, and rose midge
- No deadheading needed; AARS (All American Rose Selection)



COLOR IN THE LANDSCAPE: TREES

Cercis canadensis Redbud

- Zones: 5-9, native to US, SC
- Pink flowers before leaves in spring along branches and stems
- 15-30' h x 15-20' w
- Heart shaped leaves
- Single or multi-stemmed deciduous tree
- Part shade, shade
- Soils moist, fertile, well-drained
- Border, specimen, understory
- Nesting material and structure for native bees, attracts birds, moderate deer resistance



COLOR IN THE LANDSCAPE: TREES

***Cercis canadensis* Rising Sun™** Plant Patent 21,451. Cultivar name: 'JN2'

- Zones: 5-9
- Light purple-rose blooms before leaves in spring along branches and trunk
- 8-12' h x 8' w
- Spring foliage is apricot, in summer yellow and mottled lime, in autumn golden yellow
- Fast growing, compact habit
- Full sun, light shade
- Soil loam, clay-sand; dry to moist, well-drained
- Border, specimen
- Reputed disease resistant, heat and humidity tolerant
- Nectar source for butterflies



COLOR IN THE LANDSCAPE: TREES

Cornus florida var. *rubra* Cherokee Brave™ Dogwood

- Zones: 5-9
- Deep red bracts starred with white appear before leaves in spring
- 15' h x 15-20' w
- Bright red fruit in summer, fall, and winter attracts wildlife
- New foliage tinted maroon turns green in summer and maroon again in autumn
- Slow growing, multi-stemmed, horizontal layered branching
- Full sun, part shade
- Soil loamy, well-drained
- Border, specimen
- Reputed disease resistant (powdery mildew), heat tolerant, humidity tolerant



COLOR IN THE LANDSCAPE: TREES

Cornus florida 'Appalachian Spring' Dogwood

University of Tennessee Breeding Program

- Zones: 5-9
- White bracts mid spring
- 20' h x 20' w
- Spring blooms draw butterflies
- Bright red fruit in spring attracts birds
- Apple green foliage turns "searing red" in autumn
- Fast growing, upright, symmetrical
- Full sun, part shade
- Soil loamy, well-drained, moist
- Border, specimen, understory tree
- Reputed disease resistant (anthracnose, powdery mildew), heat tolerant, humidity tolerant



COLOR IN THE LANDSCAPE: TREES

Cornus kousa var. *chinensis* 'Milky Way'

- Zones: 5-8, species is native to Asia
- 20-30' h & w
- White blooms late spring - early summer, prolific producer
- Red berries in late summer to fall attract wildlife
- Fast growing, multi-stemmed, horizontal layered branching
- Mid green lvs turn orange and red in fall
- Full sun
- Soil loamy, well-drained
- Border, specimen
- Reputed disease resistance (including anthracnose), & insect resistant



COLOR IN THE LANDSCAPE: TREES

***Ginkgo biloba* Goldspire™ PPAF** Plant Patent Applied For. Cultivar name: 'Blagon.'

- Zones: 4-9, species is native to Asia
- Male (non-fruiting)
- Blooms mid spring
- 14-16' h x 5-6' w
- Fan shaped green foliage emerges slightly curled, turns bright yellow in fall.
- Columnar habit-shear back in early spring for 3-4 yrs
- Full sun to part shade
- Soil loamy, well-drained
- Border, hedge, specimen
- Reputed to be tolerant of air pollution, heat, and other environmental stresses; disease resistant, drought tolerant, heat tolerant, pest resistant



COLOR IN THE LANDSCAPE: TREES

Metasequoia glyptostoboides Dawn redwood Endangered species
reintroduced from seed discovered in China in 1943 and distributed by
Harvard's Arnold Arboretum

- Zones: 4-8
- Fast growing, wet soil tolerant
- 70-100' h x 15-25' w
- Deciduous conifer with deep orange brown colored needles that drop in fall, small cones in hot summer
- Upright habit, buttressed roots
- Full sun
- Soil wet, loamy, not drought tolerant
- Specimen
- Endangered species, heirloom plant, reputed urban pollution tolerant



COLOR IN THE LANDSCAPE: TREES

Nyssa sylvatica Blackgum

- Native US, SC
- Blue berries attract wildlife (birds and mammals)
- 30-60' h x 20-30' w
- Glossy green foliage turns yellow, orange, scarlet and purple in fall
- Upright habit, horizontal branching
- attractive furrowed gray bark
- Full sun, part shade, shade
- Moist acid soils, sandy or clay loam
- Slow grower, transplant while young-tap root, disease susceptible
- Shade tree, bog or pond garden, ornamental
- Benefits honey bees, attracts birds



COLOR IN THE LANDSCAPE: TREES

Nyssa sylvatica 'Wildfire'

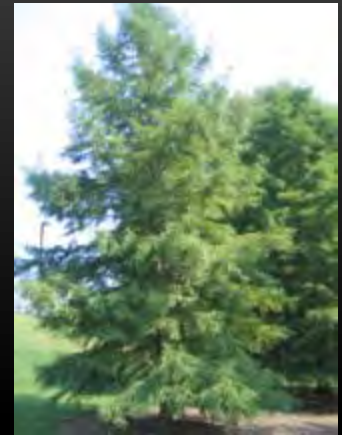
- Zones: 4-9
- 30-50' h x 20-30' w
- Foliage emerges red turns dark green, fiery red in fall.
- Upright habit, attractive furrowed gray bark
- Full sun
- Soil loamy, well-drained
- Specimen
- Reputed disease resistance; including bacterial leaf spot
- Black berries attract wildlife



COLOR IN THE LANDSCAPE: TREES

Taxodium distichum Bald cypress

- Zones 4-11, Native to US, SC
- Sun to part shade
- 60-80' h x 25-30' w
- Feathery foliage bronze in autumn
- Deciduous conifer
- Fast grower
- Drought & wet tolerant; forms 'knees'; soil tolerant
- Tolerates compaction
- Provides wildlife cover and nesting; seeds feed birds; larval and/or nectar host for baldcypress sphinx (*Isoparce cupressi*)



Photos by Ellen Vincent

INVASIVE SPECIES CHECKED ✓

- Plants profiled in this Powerpoint presentation do not appear on the following invasive plant lists on February 3, 2013:

✓ SC Exotic Plant Pest Council Web site at <http://www.se-eppc.org/southcarolina/>

SOURCES

- **Sustainable Sites Initiative:**
<http://www.sustainablesites.org/>
- **Guidelines and Performance Benchmarks:**
<http://www.sustainablesites.org/report/>
- **SSI Pilot Projects:**
<http://www.sustainablesites.org/pilot/>
- **Lady Bird Johnson Wildflower Center native plants database:**
<http://www.wildflower.org/plants/>
- **SC Exotic Plant Pest Council list of invasive plants:**
<http://www.se-eppc.org/southcarolina/invasivePlants.cfm>



Ellen Vincent, Ph.D.
Environmental Landscape Specialist

ISA Certified Arborist

Environmental Horticulture Dept.
SAFES
173 Poole Agricultural Center
Box 340310
Clemson, SC 29634-0310

864.656.1342 (office)
803. 243.8888 (cell)
864.656.4960 (FAX)
ellenav@clemson.edu

