

NATIVE PLANTS IN THE SUSTAINABLE LANDSCAPE

DR. ELLEN VINCENT NATIVE PLANT SOCIETY
18JUNE2019



A NATIVE PLANT:

<http://www.wildflower.org/whynatives/>

- North American native plants are defined as those that existed here without human introduction.



Acer rubrum
Red maple

6/18/2019



Betula nigra
River birch



Callicarpa Americana
Beautyberry

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A NATIVE PLANT:

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/ct/technical/ecoscience/invasive/?cid=nrcs142p2_011124/

- Only **plants** found in this country before European settlement are considered to be **native** to the United States (USDA).



Asarum canadense
Wild ginger



Ilex verticillata
Winterberry holly



Hydrangea quercifolia
Oakleaf Hydrangea

WHY PLANT NATIVE:

- The loss of native plant communities has reduced wildlife habitat and the genetic diversity necessary for balanced ecosystems.
- Native plants are disappearing at an alarming rate due to human activities:
 - Urban development
 - Agribusiness
 - Introduction of invasive species



WHY PLANT NATIVE:



- **-Report by Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services**
 - Current global response insufficient; ‘Transformative changes’ needed to restore and protect nature;
Opposition from vested interests can be overcome for public good
- Through ‘transformative change’, nature can still be conserved, restored and used sustainably – this is also key to meeting most other global goals. By transformative change, we mean a fundamental, system-wide reorganization across technological, economic and social factors, including paradigms, goals and values.”

BENEFITS OF NATIVE PLANTS

- They are winter hardy and heat tolerant to a given area.
- Provide food and habitat for animals and insects.
- Less susceptible to pest infestations.
- Less likely to become invasive.
- If selected carefully, may not require any soil modification.
- If properly selected require less irrigation, fertilization.
- Source of food and traditional or new medicines.

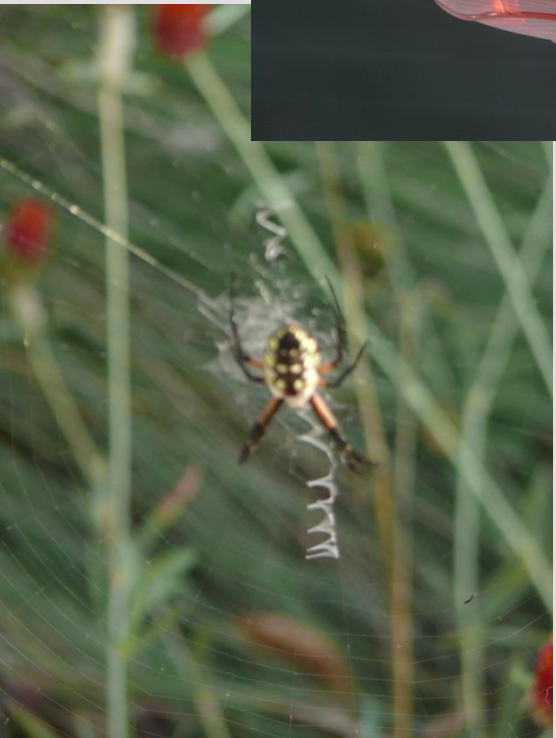


CHALLENGES OF NATIVE PLANTS

- Locating reputable sources that grow the plants (not harvest from the wild).
- Changing aesthetic preferences.
- Changing tolerance levels: **Biodiversity** means living with other species.



http://bee-pollen-health.com/WaxMothsandHoneyBees_2.jp



Photos by Ellen Vincent

BEHAVIOR CHANGES

- Exposure helps create acceptance.
- Visual appeal can heighten interest.
- Signage can serve as passive education.
- Interviews can serve as participatory or active education.

High Line, NYC



<http://www.inhabitat.com/wp-content/uploads/hlfingersofgrass.jpg>

HIGH LINE, NYC



<http://www.inhabitat.com/wp-content/uploads/highlinerendering.jpg>



<http://cherrypatter.com/wp-content/uploads/2009/06/highline-flowers.jpg>



SIGNAGE & INTERVIEWS

Participatory interaction



BA7123 [RM] © www.visualphotos.com

http://www.visualphotos.com/photo/195/Survey_interview_BA7123.jpg

Passive education

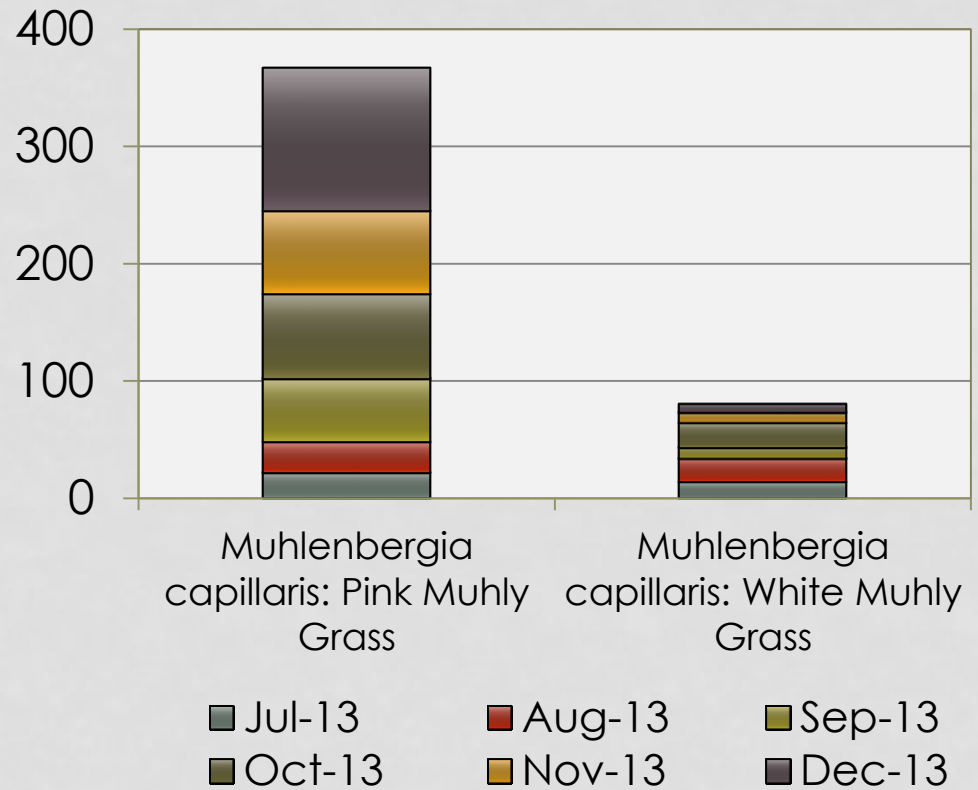


Photo by Ellen Vincent



Photo by Ellen Vincent

WEB ANALYTICS (WEB HITS)



WEB ANALYTICS (WEB HITS)

3



Symphotrichum patens

Late purple aster (65)

4



Carex flaccosperma

Blue wood sedge (64)

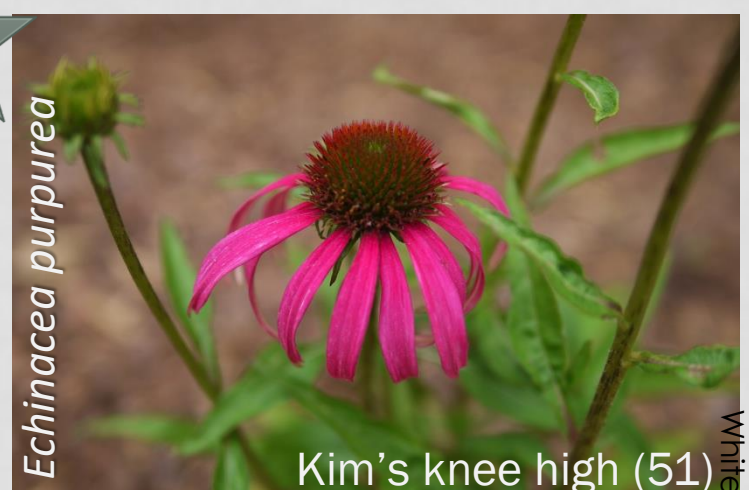
5



Fothergilla gardenii
'Mt. Airy'

Dwarf fothergilla (59)

6



Echinacea purpurea

Kim's knee high (51)

Photos by Sarah White

WEB ANALYTICS (WEB HITS)

6



Cornus florida

Flowering Dogwood (51)

7



Helianthus angustifolius

Narrow-leaf Sunflower (51)

7



Asclepias tuberosa

Butterfly weed(48)

8



Rudbeckia fulgida

Goldsturm black-eyed susan (47)

WEB ANALYTICS (WEB HITS)



Smooth Coneflower (44)



Carolina Allspice (27)



Joe Pye Weed (27)



Passion Vine (27)



Lowbush Blueberry (27)



Blue-eyed Grass (23)



Fringe Tree (27)



Blue False Indigo (17)



Bushy Bluestem (9)

SEEING IS BELIEVING

- Visualization may be an effective tool for effecting behavior change in response to environmental issues:
 - Aesthetics and management
Brown, T., Keene, T., & Kaplan, S. (1986). Aesthetics and management: Bridging the gap. *Landscape and Urban Planning*, 13, 1-10.
 - Climate change
Sheppard, S. (2005). Landscape visualization and climate change: The potential for influencing behavior. *Environmental Science & Policy*, 8 (6), 637-654.

CHANGING PERCEPTION

Changing aesthetic preferences—Joan Nassauer, University of Michigan

- New landscape material will be more preferred if it is well tended.

Nassauer, J. I. & Opdam, P. (2008). Design in science: Expanding the landscape ecology paradigm. *Landscape Ecology*, 23, 633–644.

Nassauer, J. I., Wang, Z., & Dayrell, E. (2009) What will the neighbors think? Cultural norms and ecological design. *Landscape and Urban Planning* 92, 282–292.



http://seas.umich.edu/research/faculty/joan_nassauer

City of
Greenville
Grounds team



Photo by Ellen Vincent

TENDED VS UNTENDED

SC Botanical Garden



http://www.discoversouthcarolina.com/ProductPictures/2703_2_2.jpg?height=600&autocrop=1

Untended landscape, NY town



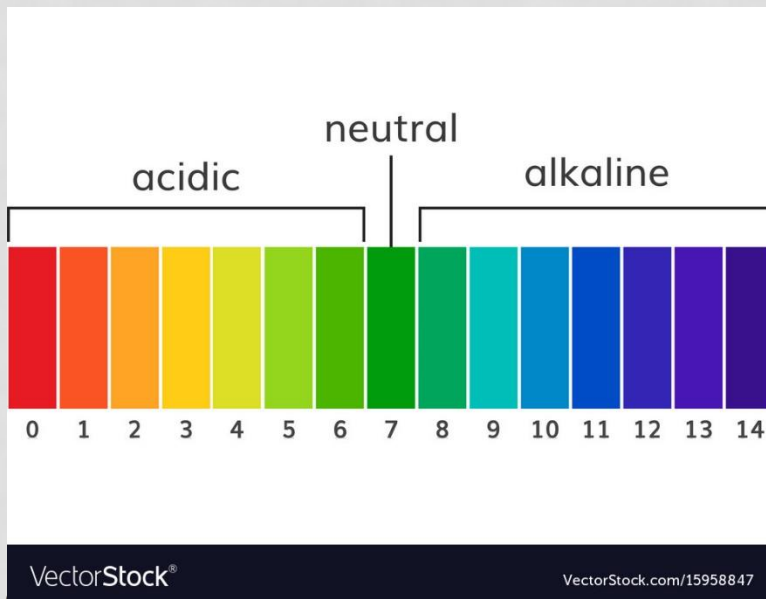
<http://www.brookhaven.org/Portals/0/litter%203.jpg>

Sustainable landscape components



PERENNIAL GARDENS RIGHT PLANT RIGHT PLACE

- Conduct a soil test
- Select plants that tolerate the pH
- Select plants that tolerate the sun/shade patterns



PERENNIAL GARDENS RIGHT PLANT RIGHT PLACE

How to collect a soil sample:

- Clemson AG Services Lab
<https://www.clemson.edu/public/regulatory/ag-srvc-lab/soil-testing/collecting-samples.html>

Sample results:

- Please contact the Home and Garden Information Center (1-888-656-9988) with questions regarding sample results.

PERENNIAL PLANT INSTALLATION & MAINTENANCE

- Well-drained fertile soil
- Proper sun exposure
- Proper planting techniques
- Proper placement and spacing
- Mulch
- Proper maintenance



Photo by Walker Massey

Echinacea purpurea in
Sustainable Landscape
Demonstration Garden Clemson
University McGinty Mall

SOIL PREPARATION

- Test soil for organic matter
- Till soil
- Increase organic matter into soil
- Raised beds
- Avoid compaction



ORGANIC MATTER



Photo by Ellen Vincent

6" leaf mold tilled to 12" depth in Sustainable Landscape Demonstration Garden, Clemson University McGinty Mall

SOIL TIPS

- Drainage is essential for healthy plants
- Moderate fertility is the goal for healthy plants
- Planting too deep can cause crown rot, an ancient perennial hazard
- All plants require moisture, especially during drought, for best display
- Water deeply, but only when the soil is dry or almost dry
- Vegetative mulch increases soil organic matter content as it decomposes
- Avoid compacting soil



PROPER SUN EXPOSURE

- Plants requiring **full sun should receive 6 or more hours** of unobstructed sunlight per day
- With inadequate sunlight, perennials may:
 - Bloom less or not at all
 - Stretch toward the light
 - Appear leggy
 - Exhibit faded foliar color

SUN SEEKING PERENNIALS



Leaning



Color distortion

Photos by Ellen Vincent

PROPER SUN EXPOSURE

- Plants requiring **part shade** should receive **less than 5 hours of direct sunlight per day**
- Prefer **shade from afternoon sun**
- Plants receiving too much sun may:
 - Exhibit foliar browning
 - Appear stunted
 - Show faded foliar color

SUN SCORCHED PERENNIALS



Needs shade from sun



Proper shaded sun exposure

Photos by Ellen Vincent

PROPER PLANTING TECHNIQUES

- Plant right plant in the right place
- Fall planting is best because it provides time for perennial roots to become established before onset of summer heat and drought
- Crown of plant should be level with the ground or slightly higher



Photo by Ellen Vincent

Perennial installation at Sustainable Landscape Demonstration Garden, Clemson University McGinty Mall

PROPER PLANTING TECHNIQUES



Photo by Ellen Vincent

Perennial installation at Sustainable Landscape
Demonstration Garden, Clemson University McGinty Mall

PROPER PLACEMENT AND SPACING

- Mass planting is popular
- Space plants according to their mature widths and heights. Many perennials will be spaced 18" apart

Renee
Byrd (Byrd
Landscape
Design)
SCBG
Children's
Garden
design



6/18/2019

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PROPER SPACING



Photo by Ellen Vincent

AVOID OVERCROWDING

- Disease and insect problems
- Frequent division



MULCH

- Mulch should not touch the stem of the plant or cover the crown



EXPLORATION



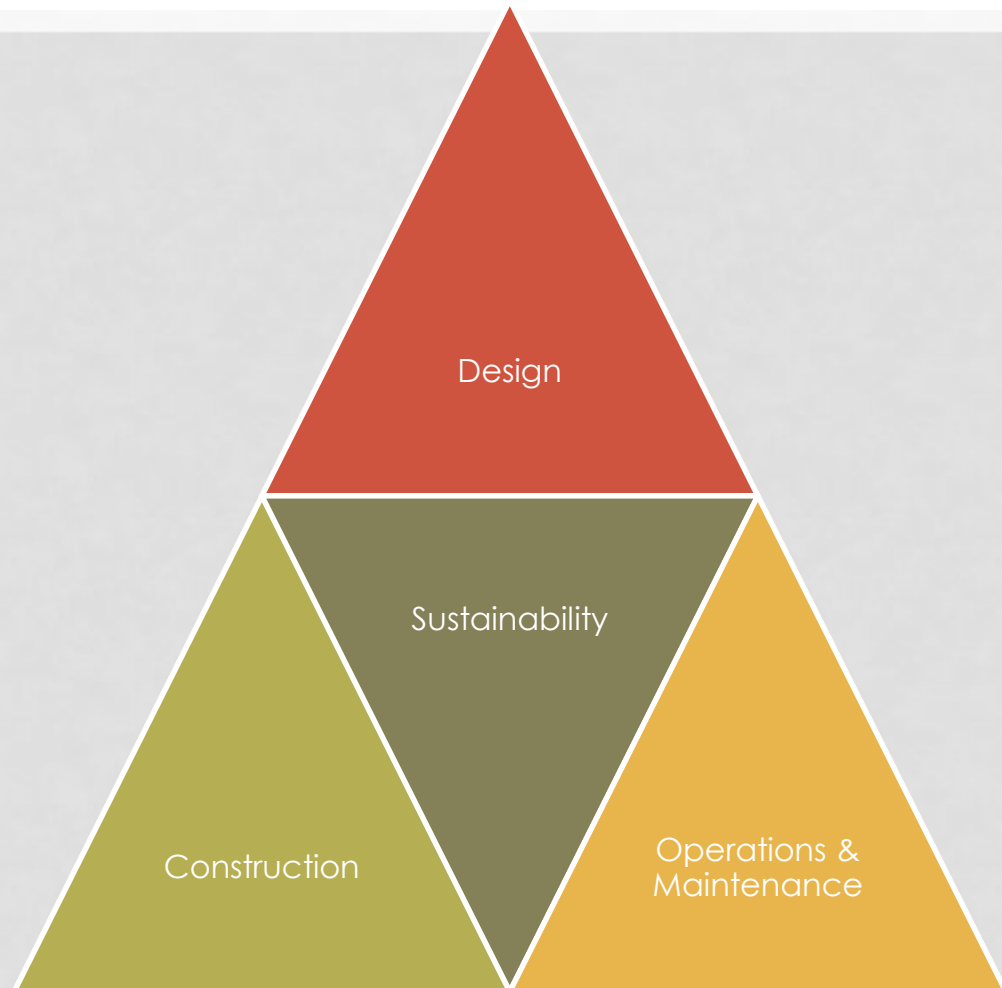
[http://www.willowaynurseries.com/gallery/photos/Echinacea%20Sombrero%20Salsa%20Red%20\(1\).JPG](http://www.willowaynurseries.com/gallery/photos/Echinacea%20Sombrero%20Salsa%20Red%20(1).JPG)

Sustainable landscape components



SUSTAINABILITY: MODERN DEF.

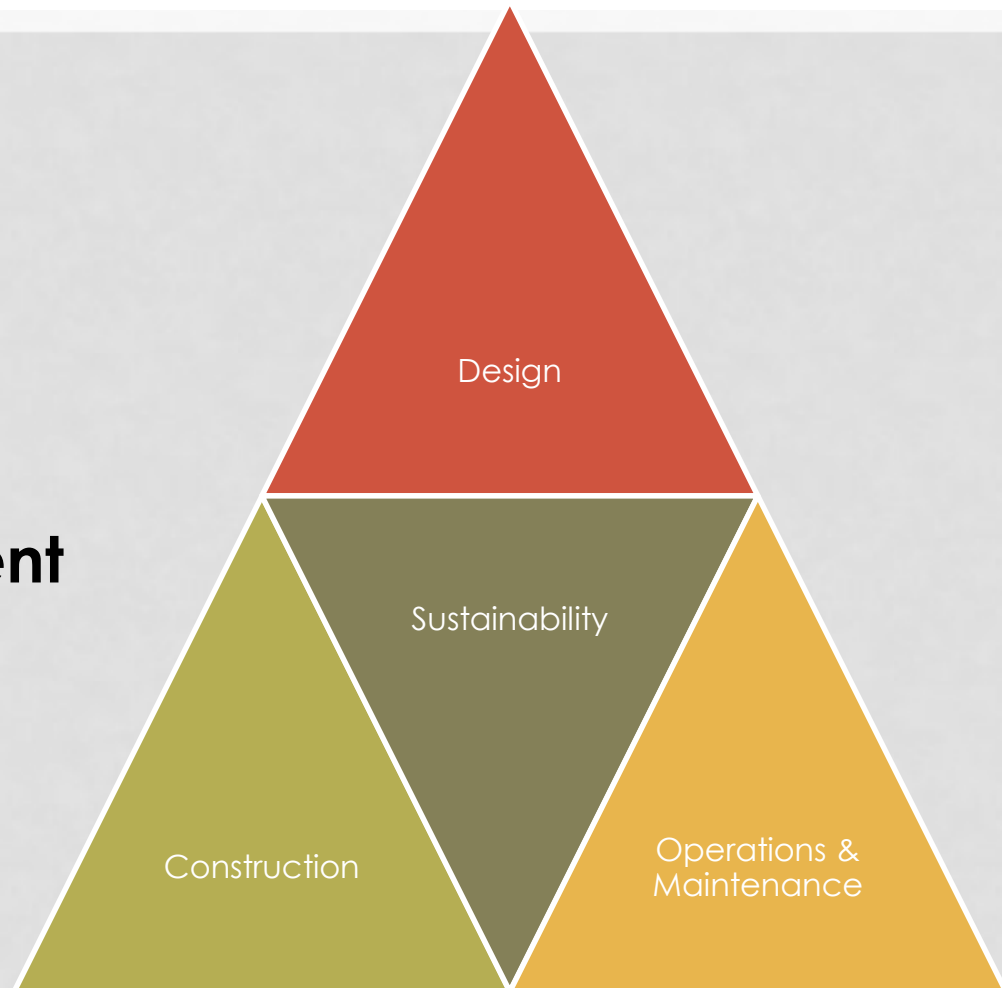
“Sustainability is defined as design, construction, operations, and maintenance practices that meet the needs of the present without compromising the ability of future generations to meet their own needs (p. 5).



SUSTAINABILITY: MODERN DEF.

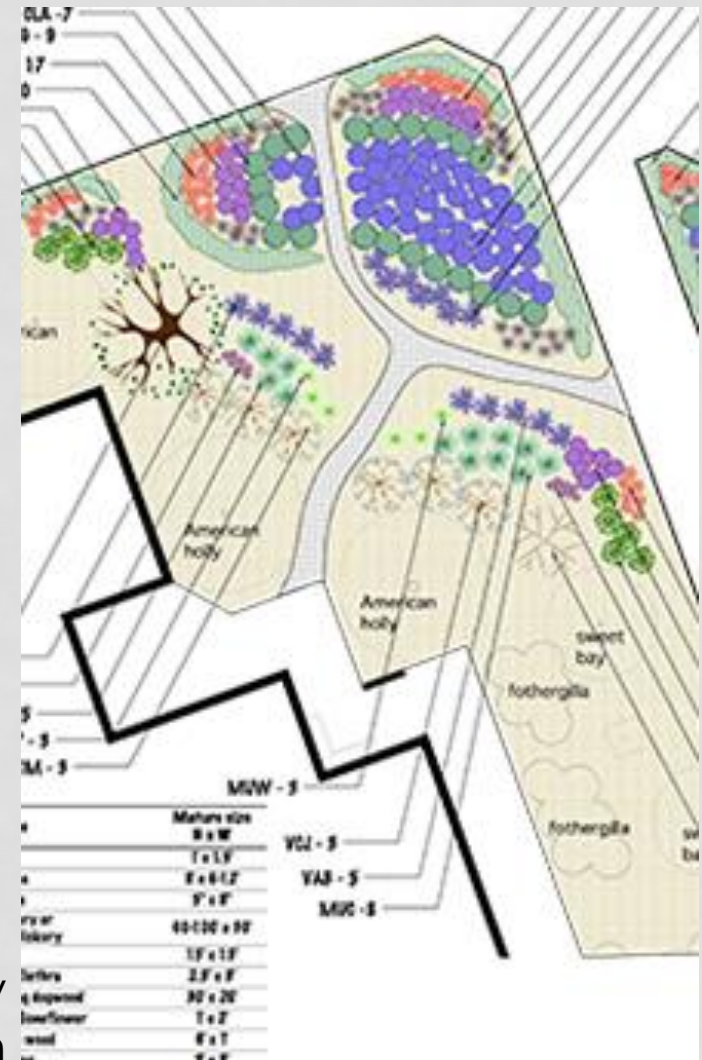
The SITES rating system facilitates **green infrastructure planning** to create beautiful outdoor spaces that are functional and **resilient** (p. 5).

SITES: The right tool for green infrastructure
Published on: 27 Feb 2018
Author: Danielle Pieranunz
<http://www.sustainablesites.org/sites-right-tool-green-infrastructure>



ECOSYSTEM BENEFITS

- Ecosystem benefits are the goods and services provided by healthy ecosystems
- Examples:
 - Plants that promote pollination of crops by bees, bats, or birds
 - Preserving wetlands that provide flood protection
 - Filtration of air and water by vegetation and soils (The Case for Sustainable Landscapes, 2009, p. 6).



Allison Kelly

Sustainable Landscape Demonstration Garden

ECOSYSTEM BENEFITS-HISTORICAL WORK

Rachel Carson, (1907-1964) marine biologist, author

Silent Spring (1962) published two years before she died of cancer



Believed man was assaulting the environment through excessive use of insecticides (DDT) (p. 7).

“contamination of air, earth, rivers, and sea with dangerous and even lethal materials” –Carson 1962 (p. 6).

Work spurred **creation of the U.S. Environmental Protection Agency (EPA)**; and spurred the ban on DDT and other insecticides.

<http://www.google.com/imgres?q=Rachel+Carson&hl=en&client=firefox-a&sa=G&rls=org.mozilla:en-US:official&biw=1920&bih=1010&gbv=2&tbn=isch&tbnid=5YnjENqAGFTFM:&imgrefurl=http://www.uncoverage.net/tag/rachel-carson/&docid=dBrEfzvkQRUMIM&w=600&h=460&ei=vDxVTvLXllMdtgf8ylCQAg&zoom=1&iact=hc&vpx=1158&vpy=126&dur=11106&hovh=197&hovw=256&tx=93&ty=138&page=1&tbnh=135&tbnw=157&start=0&ndsp=73&ved=1t:429,r:8,s:0>

ECOSYSTEM BENEFITS-HISTORICAL WORK

Rachel Carson, (1907-1964) marine biologist, author

Ellis Reid, 1st grader in NC



<http://www.google.com/imgres?q=Rachel+Carson&hl=en&client=firefox-a&sa=G&rls=org.mozilla:en-US:official&biw=1920&bih=1010&gbv=2&tbn=isch&tbnid=5YnjENqAGFTFM:&imgrefurl=http://www.uncoverage.net/tag/rachel-carson/&docid=dBrEfvzkQRUMIM&w=600&h=460&ei=vDxVTvLXllmDtgf8yICQAg&zoom=1&iact=hc&vpx=1158&vpy=126&dur=11106&hovh=197&hovw=256&tx=93&ty=138&page=1&tbnh=135&tbnw=157&start=0&ndsp=73&ved=1t:429,r:8,s:0>



Photo courtesy of Laurie Reid

ECOSYSTEM BENEFITS

- Not currently accounted for in our economic calculations (The Case for Sustainable Landscapes, 2009, p.6).
- Usually under-considered by land use decision makers.
- + May be **increased** by using healthy ecosystems as a model during development.
 - See Biomimicry Institute 'Ask Nature' Web page at <http://www.asknature.org/>.

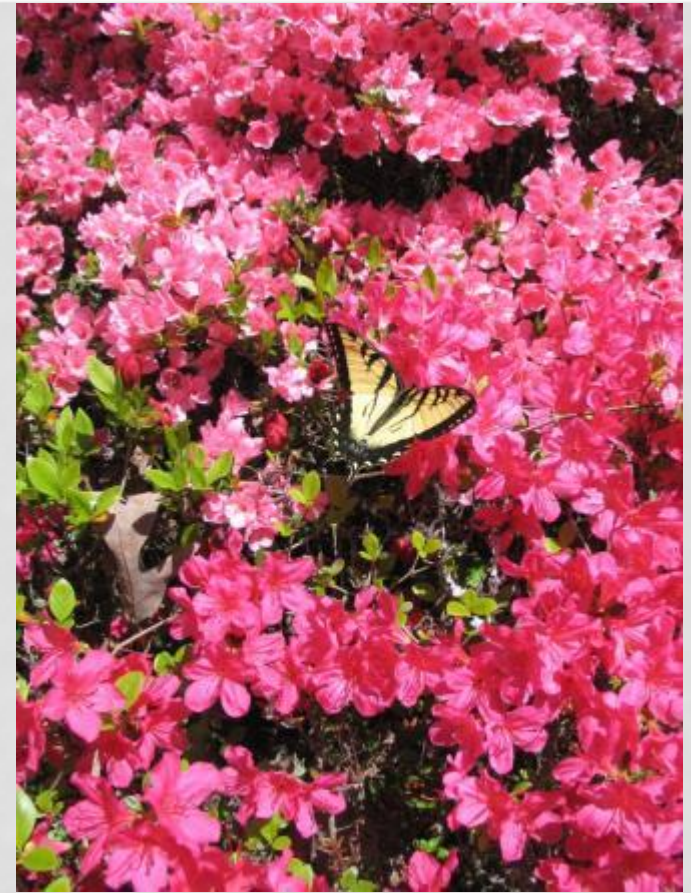


Photo by Ellen Vincent

CLEMSON[®]

**College of AGRICULTURE,
FORESTRY AND LIFE SCIENCES**

Carolina Yards Plant Database

Search the Plant Database

Region	Soil type
SC Native	Soil pH
Plant type	Soil moisture
Sunlight	Salt tolerance
Wildlife	Stormwater

WEB TRAVELS: ECOSYSTEM BENEFITS OF NATIVE PLANTS

- **Lady Bird Johnson Wildflower Center Native Plant Database:**
- <http://www.wildflower.org/plants/>
- Recommended plant species for each state

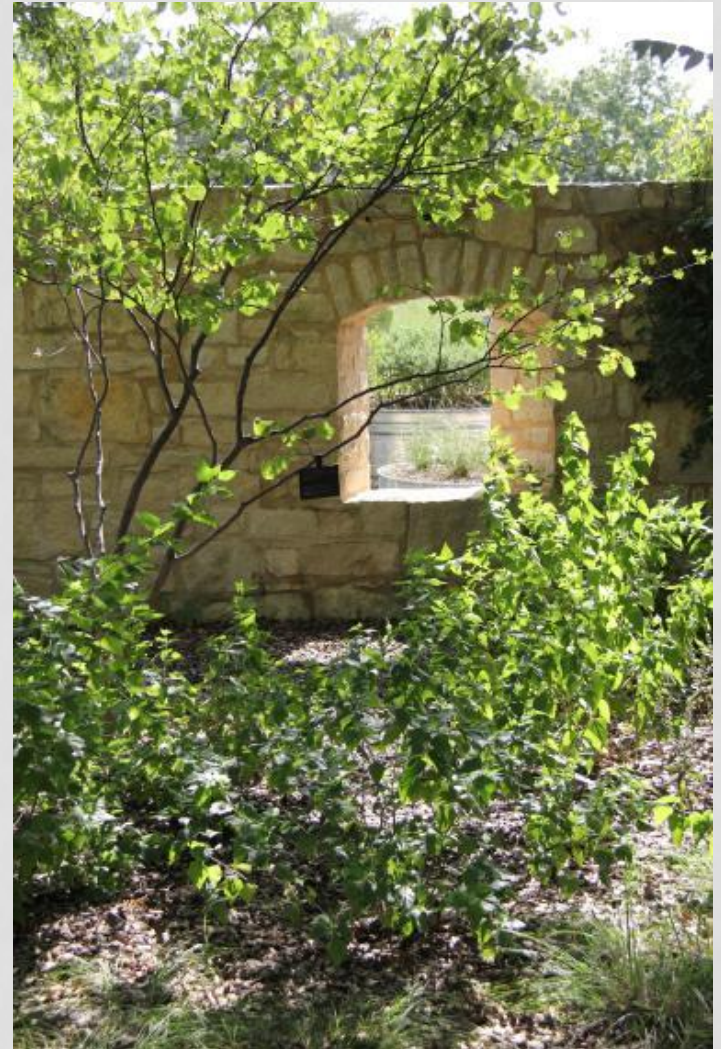


Photo by Ellen Vincent



ECOSYSTEM BENEFITS-BAPTISIA AUSTRALIS

BENEFIT

- **Use Other:** Plant juice turns purple on exposure and is a fair substitute for true indigo in making blue dye.
Warning: Other plants in this genus are poisonous if ingested, although no human fatalities have been recorded. Sensitivity to a toxin varies with a person's age, weight, physical condition, and individual susceptibility. Children are most vulnerable because of their curiosity and small size. Toxicity can vary in a plant according to season, the plant's different parts, and its stage of growth; and **plants can absorb toxic substances, such as herbicides, pesticides, and pollutants from the water, air, and soil.**
Conspicuous Flowers: yes

VALUE TO BENEFICIAL INSECTS

- Special Value to Native Bees
Special Value to Bumble Bees

This information was provided by the Pollinator Program at **The Xerces Society for Invertebrate Conservation.**



Baptisia australis Blue false indigo

ECOSYSTEM BENEFITS-*ECHINACEA PURPUREA*

BENEFIT

Use Wildlife: Echinacea spp. attract butterflies and hummingbirds.

Conspicuous Flowers: yes

Nectar Source: yes

Deer Resistant: No

VALUE TO BENEFICIAL INSECTS:

- Special Value to Native Bees

This information was provided by the Pollinator Program at **The Xerces Society for Invertebrate Conservation**.



Echinacea purpurea Purple coneflower
Sustainable Landscape Demonstration Garden, Clemson University

Photo by Walker Massey



Lady Bird Johnson Wildflower Center Native Plant Database

https://www.wildflower.org/plants/result.php?id_plant=E_CPU

ECOSYSTEM BENEFITS-*CERCIS* *CANADENSIS*

BENEFIT

Use Food: Add flowers and flower buds to salads, breads and pancakes. They have a slightly sour taste, high in vitamin C. Young pods may be eaten raw, boiled or sauteed. (Tull)

Use Other: Boiled in water, redbud twigs produce a yellow dye. (Kershaw)

Conspicuous Flowers: yes

Fragrant Flowers: yes

Attracts: Birds

Deer Resistant: Moderate

VALUE TO BENEFICIAL INSECTS

Special Value to Native Bees

Special Value to Bumble Bees

Provides Nesting Materials/Structure for Native Bees

This information was provided by the Pollinator Program at **The Xerces Society for Invertebrate Conservation.**



Cercis canadensis Eastern redbud

ECOSYSTEM BENEFITS-MAGNOLIA VIRGINIANA

BENEFIT

Use Ornamental: Attractive, aromatic, showy, blooms are ornamental

Use Wildlife: Very low. Nectar-moths, Nectar-beetles

Conspicuous Flowers: yes

Fragrant Flowers: yes

Attracts: Birds

BUTTERFLIES AND MOTHS OF NORTH AMERICA (BAMONA)

Sweetbay silkmoth (*Callosamia securifera*)



Laval host



Magnolia virginiana Sweetbay magnolia

Lady Bird Johnson Wildflower Center Native Plant Database
https://www.wildflower.org/plants/result.php?id_plant=ECP

ECOSYSTEM BENEFITS-NYSSA SYLVATICA

BENEFIT

Use Ornamental: Shade tree, Fall conspicuous, Bog or pond area, Water garden

Use Wildlife: Substrate-insectivorous birds, Fruit-birds, Fruit-mammals, Browse, Nectar-bees

Attracts: Birds

VALUE TO BENEFICIAL INSECTS

Special Value to Honey Bees

This information was provided by the Pollinator Program at **The Xerces Society for Invertebrate Conservation.**



Nyssa sylvatica Blackgum

Nyssa sylvatica
'Wildfire'



Ecosystem benefits-*Taxodium distichum*

TAXODIUM DISTICHUM BALD CYPRESS

Benefit

Use Ornamental: Fall conspicuous,
Long-living, Attractive

Use Wildlife: Cover, Nesting site,
Substrate-insectivorous birds, Seeds-
granivorous birds, Seeds-Small
mammals

Interesting Foliage: yes

Attracts: Birds

Deer Resistant: Moderate

Tree is a larval host and/or nectar source for:

Baldcypress sphinx (*Isoparce cupressi*)



Photo by E. Vincent



<http://www.silkmoths.bizland.com/IsoparcecupressiJuly18Alabamadb.jpg>

http://www.wildflower.org/plants/result.php?id_plant=TADI2

MUHLENBERGIA CAPILLARIS

Latin name: *Muhlenbergia capillaris*

Common name: Pink Muhly Grass

Flowers: Showy¹² light purple late summer into autumn

Fruit: Not noticeable

Height & Width: 3' x 3'¹²

Type: Perennial ornamental grass¹²

Habit: Upright grass¹²

Wetland indicator category:** FACU¹⁷

Texture: Fine textured basal foliage¹²

Growth rate: Medium¹²

Light: Sun to light shade¹²

Moisture: Very drought tolerant¹²

Soil: Well drained soil does well in hot dry sandy sites¹

Zones: 6-9¹²

Origin: Western-central United States¹²



Photo by Walker Massey

Ecosystem benefits:

Aesthetically pleasing foliage & flowers

Low maintenance

Deer Resistant: High

MUHLENBERGIA CAPILLARIS 'WHITE CLOUD'

http://myfolia.com/retailers/854-park-seed/catalogue_items/73797-muhly-grass-white-cloud

Latin name: *Muhlenbergia capillaris*
'White Cloud'

Common name: White Muhly Grass

Flowers: Showy¹²

Fruit: Not noticeable¹²

Height & Width: 3' x 3'¹²

Type: Perennial ornamental grass¹²

Habit: Upright grass¹²

Wetland indicator category:** FACU¹⁷

Texture: Fine textured basal foliage¹²

Growth rate: Medium¹²

Light: Sun to light shade¹²

Moisture: Very drought tolerant¹²

Soil: Well drained soil does well in hot dry sandy sites¹²

Zones: 6-9¹²

Origin: Western-central United States¹²



Ecosystem benefits:

Aesthetically pleasing foliage & flowers

Low maintenance

Deer Resistant: High

CAREX FLACCOSPERMA

Latin name: *Carex flaccosperma*

Common name: Blue Wood Sedge

Flowers: Non showy flowers⁹

Fruit: Insignificant⁹

Height & Width: 1' x 1'⁹

Type: Sedge⁹

Wetland indicator category:** FAC+

Habit: Upright clumps⁹

Texture: Medium¹⁶

Growth rate: Slow¹⁶

Light: Part shade¹⁶

Moisture: Medium to wet¹⁶

Soil: Fine or medium¹⁶

Zones: 5 to 8⁹

Origin: Southeast⁹



Ecosystem benefits:

Shade tolerant

Wetland tolerant

Low maintenance

Deer Resistant: High

<http://www.missouribotanicalgarden.org/PlantFinder/FullImageDisplay.aspx?documentid=5208>

http://plants.usda.gov/java/targetImage?imageID=c0f13_004_avp.jpg

SYMPHYOTRICHUM PATENS

Latin name: *Symphyotrichum patens*

Common name: Late Purple Aster

Flowers: Thin rayed purple ¹⁷

Fruit: Not noticeable¹⁷

Height & Width: 3' x 3' ¹⁷

Type: Perennial¹⁷

Habit: Forb/herb ¹⁷

Wetland indicator category:** N/A

Texture: Coarse¹⁷

Growth rate: Moderate ¹⁷

Light: Full sun ¹⁷

Moisture: Medium¹⁷

Soil: Coarse to medium soils ¹⁷

Zones: 7 to 8¹⁷

Origin: Southwest to eastern United States¹⁷



Photo by Walker
Massey

Ecosystem benefits:

Drought tolerant

Low maintenance

Attracts butterflies

HELIANTHUS ANGUSTIFOLIUS

http://www.wildflower.org/image_archive/640x480/PCD2414/PCD2414_IMG0016.JPG

Latin name: *Helianthus angustifolius*

Common name: Swamp sunflower

Flowers: Prolific 2-3" flowers in fall with narrow yellow petals surrounding a brown or purple disc³

Fruit: Inconspicuous¹⁶

Height & Width: 5-7' x 4' ³

Type: Perennial¹⁰

Habit: Upright¹⁵; Flowering herb¹⁶

Wetland indicator category:** FAC, FACW¹⁷

Texture: Medium¹⁶

Growth rate: Moderate¹⁶

Light: Full sun to part shade²

Moisture: Medium to wet¹⁰

Soil*: pH preference 4-7¹⁶; tolerates Sandy, Sandy Loam, Medium Loam, Clay Loam, Clay, Acid-based soils¹⁰

Zones: 5-9³

Origin: Eastern North America¹⁶



Ecosystem Benefits:

Wetland tolerant (for bog or pond area)
Attracts birds
Special value to native bees

10: http://www.wildflower.org/plants/result.php?id_plant=HEAN2

ASCLEPIAS TUBEROSA



<http://www.bing.com/images/search?q=asclepias+tuberosa&FORM=HDRSC2#view=detail&id=27D409B3CECC4FEF3D5C2590BA8B536503346AB&selectedIndex=37>

Latin name: *Asclepias tuberosa*

Common name: Butterfly Weed

Flowers: Vibrant orange umbels that produce colored follicles if left³

Fruit or cones: Ornamental follicles

Height & Width: 1'x1.5'³

Type: Herbaceous¹⁶

Wetland indicator category:** Not available¹⁷

Texture: Coarse¹⁶

Growth rate: Initially slow, medium when established³

Light: Full sun³

Moisture: Low¹⁶

Soil*: Course to medium soils¹⁶

Zones: 4-9³

Origin: Eastern North America¹⁶



Ecosystem Benefits

Attracts: Hummingbirds , Butterflies

Larval Host: Grey Hairstreak, Monarch, Queens

Nectar Source: yes

Deer Resistant: High

EUTROCHIUM MACULATUM

(EUPATORIUM)

Latin name: *Eutrochium maculatum*

Common name: Spotted Joe-Pye Weed

Flowers: Flat-topped clusters in late summer with 9-15 flowers^{3,13}

Fruit: Inconspicuous¹⁰

Height & Width: 5-7' x 4'³

Type: Herbaceous perennial¹⁰

Habit: Upright¹⁰

Wetland indicator category:** FACW¹⁷

Texture: Medium¹⁸

Growth rate: Medium¹⁸

Light: Sun to part shade¹⁰

Moisture: Wet to moist^{10,13}

Soil*: Loamy and calcareous soils^{10,13}

Zones: 4 - 8³

Origin: Eastern North America¹⁶

Ecosystem Benefits:

Use Wildlife: Not a preferred food source for herbivores, but may be eaten occasionally by deer, rabbits and livestock.

Conspicuous Flowers: yes

Fragrant Flowers: yes

Interesting Foliage: yes

Attracts: Butterflies

Larval Host: The caterpillars of some moth species feed on various parts.

Nectar Source: yes

Special value to native bees



ECHINACEA PURPUREA

'KIM'S KNEE HIGH'

Latin name: *Echinacea purpurea*

'Kim's Knee-High'

Common name: Purple coneflower

Flowers: Purple-pinkish petals surround a raised brown/bronze-colored center disk^{2,12}

Fruit: Inconspicuous³

Height & Width: 2' x 2'³

Type: Herbaceous perennial^{4,10}

Habit: Upright^{3,12}

Wetland indicator category:** Not available¹⁷

Texture: Coarse⁴

Growth rate: Medium⁴

Light: Full sun to part shade

Moisture: Dry to medium¹⁰

Soil*: Tolerates clay, sandy to rich soils^{10,12}

Zones: 3 - 8²

Origin: Midwestern to Eastern United States, including South Carolina¹⁶

Ecosystem Benefits:

Use Wildlife:

Echinacea spp. attract butterflies and hummingbirds.

Use: Medicinal

Conspicuous

Flowers: yes

Nectar Source: yes

Deer Resistant: No

Special value to native bees



http://www.wildflower.org/image_archive/640x480/SAW/SAW_01215.JPG

http://www.wildflower.org/plants/result.php?id_plant=ECPU

http://www.clemson.edu/cafls/demo/plant_profiles/echinacea_purpurea.html

ECHINACEA LAEVIGATA

Latin name: *Echinacea laevigata*

Common name: Smooth Purple Coneflower

Flowers: Purple to pink, showy and delicate drooping purple rays. Blooms June to August¹²

Fruit: Not significant¹³

Height & Width: 2-5' x 1.5-2'¹²

Type: Herbaceous perennial¹²

Habit: Upright, cascading, mound¹⁶

Wetland indicator category:** No Wetland indicator was available for this plant.

Texture: Fine¹⁶

Growth rate: Moderate¹²

Light: Full sun to part shade¹²

Moisture: Dry to medium¹²

Soil: Tolerates clay soil, dry soil, shallow and rocky soil¹²

Zones: 3-8¹²

Origin: Southeastern United States¹⁶

Note: *This plant is on the United States threatened and endangered species list*¹⁶

Ecosystem benefits: Special value to native bees



RUDBECKIA FULGIDA 'GOLDSTURM'

Latin name: *Rudbeckia fulgida* var. *sullivantii*
'Goldsturm'

Common name: Goldsturm Black-eyed Susan

Flowers: Yellow rays with black center disk¹²

Fruit: Inconspicuous¹⁰

Height & Width: 2-3' x 1-2'¹²

Type: Herbaceous perennial¹²

Habit: Upright, clump forming¹²

Wetland indicator category:** FAC¹⁷

Texture: Coarse¹⁰

Growth rate: Medium²

Light: Full sun²

Moisture: Medium to dry¹²

Soil*: Tolerates a wide variety of soils¹²

Zones: 3-9¹²

Origin: Eastern North America, including South Carolina¹⁶



Ecosystem Benefits:

Attracts: Birds

Special value to native bees

NATIVAR RESEARCH

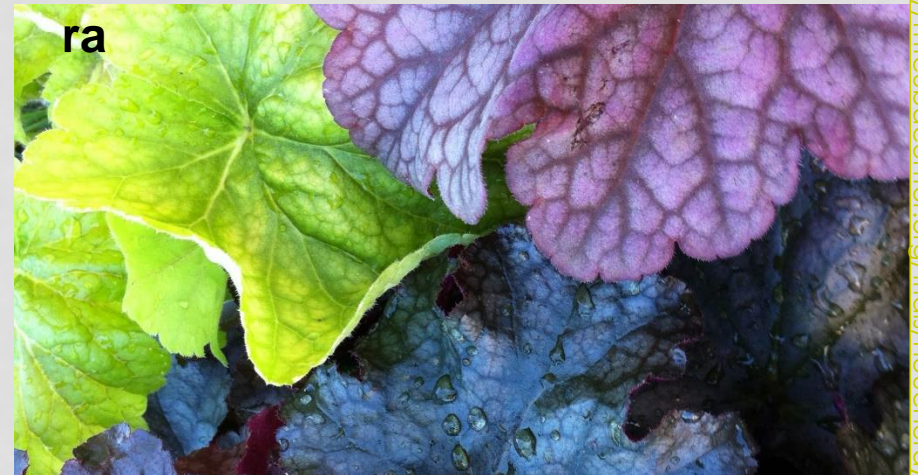
- Mt Cuba Trial Gardens
- <https://mtcubacenter.org/research/trial-garden/>

MT. CUBA
CENTER

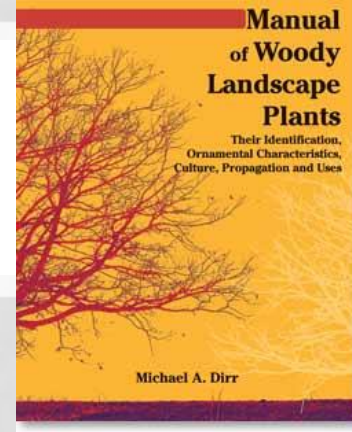
Baptisia



**Heuche
ra**



NATIVE PLANT LITERATURE



Armitage's Native Plants for North American Gardens (2006) by Allan M. Armitage

Native Perennials for the Southeast (2004) by Peter Loewer

Bringing Nature Home (2011) by Douglas W. Tallamy

Manual of Woody Landscape Plants (2009) by Michael A. Dirr



College of Agriculture, Forestry and Life Sciences

CU > CAFLS > Sustainable Landscape Demonstration > Plant Profiles > Plant Profiles

Plant Profiles

Sources



- Home & Garden Information
- Extension
- Agricultural Services
- Experiment Station
- Livestock-Poultry Health
- Regulatory Services
- Centers & Institutes
- Public Service
- Clemson University

Plant Profiles

- **PLANT RATING SHEETS** (PDF)
- *Amsonia tabernaemontana*: Eastern Blue Star
- *Andropogon glomeratus*: Bushy Bluestem
- *Asclepias tuberosa*: Butterfly weed
- *Baptisia australis*: Blue False Indigo
- *Calycanthus floridus*: Carolina Allspice
- *Carex flaccosperma*: Blue wood sedge
- *Carya ovata*: Shagbark Hickory
- *Chionanthus virginicus*: Fringe Tree

Sustainable landscape components



NATIVE PLANT DESIGN: SUSTAINABLE LANDSCAPE DEMO



Photo by Ken Allen



Photo by walker Massey

Ag Quad/McGinty Mall, Clemson University

NATIVE PLANT DESIGN: LADY BIRD JOHNSON WILDFLOWER CENTER



Photo by E. Vincent

Lady Bird Johnson Wildflower Center Austin, TX

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NATIVE PLANT DESIGN: LADY BIRD JOHNSON WILDFLOWER CENTER



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