NATIVE PLANTS

Plants native to the Upstate are well-adapted to its climate, geography and hydrology. Native or site-appropriate vegetation is by its nature very effective in managing stormwater.

What are native plants?

Native (or indigenous) plants have adapted to the hydrology, geography and climate of a region over thousands of years. As a result, a community of native plants provides natural habitat for a variety of wildlife species, such as songbirds and butterflies. As well, native plants can naturally thrive in their respective native environments.

Today, agricultural and plant species introduced from all over the world can often dominate a landscape. Invasive species often have no known enemies, and can out-compete native species for sunlight and food, leaving native plants and wildlife to disappear from a region altogether.

Why use native plants?

Landscaping with native plants is a simple, low-maintenance, and cost-effective way to achieve the multiple benefits of mimicking natural ecosystems while providing water quality benefits. Once established, native plants will often flourish with minimal or no need for irrigation or fertilizers.

It is not uncommon for the Upstate to experience serious drought. As conventional grassy lawns typically account for 30-50% of daily residential water use, the use of native plants in their place could lead to significant regional water savings. Drought-resistant native plants can thrive in our clay soils, will require less watering, and are often resistant to pests. In addition, the use of native plants can mitigate the effects of invasive species, which can be easily seen along highways taking over large swaths of vegetative cover.

CONTENTS

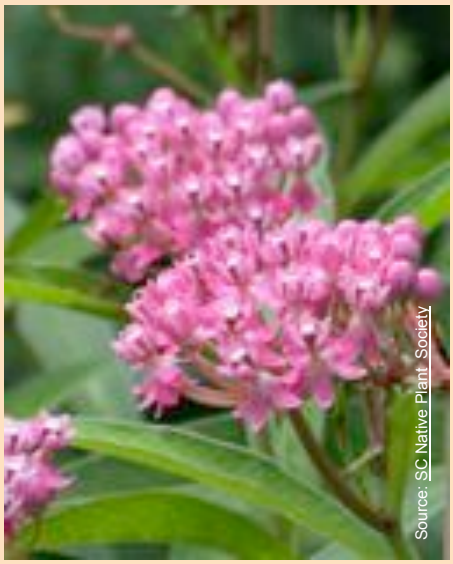
Design Components
Site Considerations
Benefits
Invasive Plants

Stormwater Benefits

- ✓ Runoff quantity control

Additional Benefits

- ✓ Cost savings
- ✓ Water savings
- ✓ Prevention of disease in other plants
- ✓ Wildlife habitat
- ✓ Potential aesthetic benefit
- ✓ Educational potential



Swamp milkweed (*Asclepias inarnata*) is attractive to birds and butterflies.

Attractive Plant Species Indigenous to the

Clockwise from left: Azaleas, butterfly milkweed, cinnamon fern, and bleeding heart *(Dicentra spectabilis)*

Replacing mowed lawns with native landscapes

There is no need to limit native plant use to LID techniques. In order to perform important ecological functions, native vegetation should be preserved wherever possible, and native plants should be employed wherever landscaping is desired. The use of native species is not as limiting as some might suppose – one school site in Spartanburg uses about 4,000 native species.

Native landscaping provides many design options and in addition to being aesthetically pleasing, native plants improve local biodiversity.

Conventional lawn maintenance accounts for a large portion of residential water use, and as such their replacement with native grasses, shrubs and flowers can result in significant water savings.

LID IN THE UPSTATE

Upstate House Woodland Garden

The Upstate House was landscaped with native plants and mulch, thereby making typical landscaping maintenance such as mowing and fertilizing unnecessary. Not having to use fertilizer will reduce the nutrient runoff from this property to nearby Richland Creek. Since becoming established, the plants at Upstate House have required very little water to thrive, making the use of natives financially appealing as well.

BENEFITS

Runoff Quantity Control: Native plants will often increase a soil's capacity to store water, which can lead to significant reductions in stormwater runoff and, consequently, flooding.

Runoff Quality Control: Native plants often require no pesticides and fertilizers. Therefore, restricting plantings to those that are native will reduce the amount of contaminated runoff that results from the use of such harmful chemicals.

A shoreline buffer of native plants can treat polluted runoff and trap sediments

Reduced Irrigation: The use of native plants in conjunction with other LID techniques provides stormwater management with limited maintenance. Used alone, native plants provide attractive landscaping without the need to water extensively once plants are established.

Air Quality Control: The modern lawn must be mowed regularly, and gas-powered lawnmowers emit up to 5% of the total air pollution in the country. Native landscapes do not require mowing, and native plants remove harmful carbon from the air.

One gas-powered lawnmower emits 11 times the air pollution of a new car

Non-invasive: Aggressive non-native plants (or invasive species) often have no predators in their new environment, and can often out-compete native plants for sunlight and nutrients, thereby endangering a plant community's survival. The triumph of invasive species can lead to a monoculture, which can cause native wildlife to disappear from a region altogether.

Wildlife habitat: Native plants attract a variety of wildlife species by providing diverse food sources and habitats. Closely-mowed lawns are of little use to butterflies and birds.

Aesthetics: There is no shortage of the array of attractive native plant species that may be used in the Upstate. In addition, as the Upstate has in recent years experienced periods of drought, native plants have a much better chance of surviving than do non-native, water-intensive plants. Thriving native species are arguably more aesthetically-pleasing than wilting, exotic species.

Educational potential: Native plants promote biodiversity. Their reintroduction into the environment can provide a useful learning tool on the interconnectedness between native plant and animal species, and the health of the environment.

Cost savings: As native plants require less irrigation, they likewise are cheaper to maintain.

Native shrubs provide cover, food and nesting habitat for wildlife, and wildlife aids plants

Native Plants and Low-Impact Development (LID)

LID is an alternative site design that attempts to mimic pre-development hydrological conditions through the use of natural and engineered storage and infiltration techniques. Native plants can be used in combination with rain gardens, bioretention cells, and green roofs, if the amended soils allow. Native plants are recommended wherever site conditions allow, because they capture water more efficiently and require less maintenance (less labor, expense and waste than plants not acclimated to our region).

Mosses, sedums, lichens, and other drought-tolerant species are planted on the Riverside High School green roof in Greer, SC.

LID Technique	Native Plant Characteristics	Maintenance	Sample Native Plants for Use
Bioretention	Plants that are suitable to the unique bioretention soils, and can withstand alternating periods of drought and full submersion	Pruning, mowing, mulching, occasional watering, initial fertilization, and general plant upkeep	Red maple, blackgum, ironwood, beautyberry, spicebush, swamp sunflower, turtlehead*
Constructed Wetland	Plants that can withstand alternating periods of drought and full submersion	Occasional weeding after plant establishment	Swamp laurel oak, virginia willow, tag alder, moss pinks, swamp milkweed, river oats
Green Roof	Drought-resistant plants that can withstand prolonged exposure to intense sunlight	Maintenance is very minor, consisting of some weeding and watering after plant establishment	Succulents (relatives of the cactus family); delosperma and sedum species
Lake Buffer	Woody with deep roots that can withstand runoff flow, trap sediment, and increase pollutant-removal	Maintaining or strengthening a robust buffer floor is essential; thickly growing meadows and perennial grasses often work	Black gum, pond Cyprus, willow oak, switchgrass, Baker's cordgrass, Indiangrass, river oats
Rain Garden	Plants that can withstand alternating periods of drought and full submersion	Mulch annually, reduce sediment flow into garden, weed, prune, and water (especially during plant establishment)	Butterflyweed, native ferns, cardinal flower, beardtounge, switch grass, pink muhly grass, beebalm, fringe tree*
General Landscaping	Choose from a variety of thousands of native species	Cut, rather than pull, weeds; Pulling may disturb soil, risking root damage for young native plants and possibly encouraging further weed growth	Moss pinks, rudbeckia, false indigo, chokeberry, native plums, switch grass, butterfly milkweed

*Actual plant selection will depend on anticipated drought/flooding amount (see http://www.bae.ncsu.edu/topic/bioretention/PiedmontPlants_list.pdf for further details)

NON-NATIVE SPECIES

The Threat of Invasive Species

Often introduced for their aesthetic qualities by humans, invasive species have the ability to devastate the water and land on which we depend. Although not all non-native plants will necessarily become invasive, the potential is always there and the risk to wreak havoc on native plants and animals is great. **The U.S. loses approximately $137 billion annually due to damage to agriculture, forestry, fishes and waterbodies as a result of the spread of invasive species.**

Groups have mobilized to fend off invasive species without the use of herbicides. Individual homeowners can also help by replacing conventional landscaping with native plants and by carefully weeding out non-natives.

Non-Native Species in the Upstate

Clockwise from left: Kudzu, cogongrass, Bradford pear, and multiflora rose

WHAT YOU CAN DO

In Your Garden

Plant drought-resistant native species that thrive in clay soils and require minimal maintenance. Replace conventional lawns with native landscapes.

At the Nursery

Visit or contact these nurseries to choose from a variety of native plant species:

- Mail Order Nurseries (http://www.mailordernatives.com)
- Carolina Wild, Anderson, SC (www.carolinawild.com)
- Meadowbrook Nursery, Marion, NC (http://www.we-du.com/display.php?f=2)
- SC Forestry Commission (http://www.state.sc.us/forest/nur.htm)

Groups such as the SC Native Plants Society offer classes, symposiums, and general information on the use of native plants in the Upstate.

The Kudzu Coalition offers training sessions and organizes volunteer kudzu clean-up trips. The Coalition strives to

NATIVE PLANT ALTERNATIVES

(Adapted from the South Carolina Native Plan

Non-Native Invasive	Native Plant Alternative
PRIVET, Ligustrum spp. (ev)	Carolina cherry laurel, Prunus caroliniana, Yaupon holly, Ilex vomitoria, Inkberry holly, Ilex glabra, Florida leucothoe, Leucothoe populifolia, Wax myrtle, Myrica cerifera
AUTUMN OLIVE and RUSSIAN OLIVE, Elaeagnus spp.	Native plums, Prunus spp, Possumhaw viburnum, Viburnum nudum, Blackhaw viburnum, Viburnum prunifolium, Winterberry, Ilex verticillata, Possumhaw holly, Ilex deciduas, Native blueberries, Vaccinium
JAPANESE HONEYSUCKLE, Lonicera japonica (ev)	Carolina jessamine, Gelsemium sempervirens, Coral honeysuckle, Lonicera sempervirens, Cross vine, Bignonia capreolata
BRADFORD PEAR, Pyrus calleryana	Various hawthorns, Crataegus, Serviceberry, Amelanchier, Redbud, Cercis Canadensis, Fringe tree, Chionanthus virginicus, Red maple, Acer rubrum, Southern sugar maple, Acer barbatum
MIMOSA, Albizia julibrissin	*Redbud, Cercis Canadensis, Honey locust, Gleditsia triacanthos, Serviceberry, Amelanchier, Dogwood, Cornus florida, Fringe tree, Chionanthus virginicus*
ENGLISH IVY, Hedera helix	Trumpet creeper, Campsis radicans, Virginia creeper, Parthenocissus quinquefolia, Carolina jessamine, Gelsemium sempervirens, Wild ginger, Asarum canadense, Hexastylis, Galax, Galax aphylla, Allegheny spurge, Pachysandra procumbens, Cross vine, Bignonia capreolata, Green and gold, Chrysogonum virginianum, Wild phlox, Phlox
PERIWINKLE, Vinca	Partridgeberry, Mitchella repens, Wild ginger, Asarum canadense, Hexastylis
NANDINA, Nandina domestica	Winterberry, Ilex verticillata, Beautyberry, Callicarpa Americana, Native blueberry, Vaccinium, Hearts-a-bursting, Euonymus americanus, Inkberry holly, Ilex glabra
BURNING BUSH, Euonymus alata	Chokeberry, Aronia, Clethra, Clethra alnifolia, Spicebush, Lindera benzoin, Itea, Itea virginica, Elliotts blueberry, Vaccinium elliottii
TREE OF HEAVEN, Ailanthus altissima	Native sumacs, Rhus, Sassafras, Sassafras albidum, Serviceberry, Amelanchier, Fringe tree, Chionanthus virginicus, Box elder, Acer negundo, Red maple, Acer rubrum
BUTTERFLY BUSH, Buddleia	Bottlebrush buckeye, Aesculus parviflora, Buttonbush, Cephalanthus occidentalis, Clethra, Clethra alnifolia, Itea, Itea virginica
EMPRESS TREE, Paulownia tomentosa	Paw paw, Asimina, Cucumber tree, Magnolia acuminate, Big leaf magnolia, Magnolia macrophylla, Basswood, Tilia Americana, Southern catalpa, Catalpa bignonioides
WISTERIA, Wisteria sinensis	American wisteria, Wisteria frutescens, Cross vine, Bignonia capreolata, Trumpet creeper, Campsis radicans
MAHONIA, Mahonia bealei	American beautyberry, Callicarpa Americana, Possumhaw viburnum, Viburnum nudum, Inkberry, Ilex glabra, Florida leucothoe, Leucothoe populifolia
ASIAN BUSH HONEYSUCKLES, Lonicera standishii, maackii, tatarica, morrowii, and fragrantissima	Blackhaw viburnum, Viburnum prunifolium, Winterberry, Ilex verticillata
MISCANTHUS, Miscanthus sinensis	Switch grass, Panicum virgatum, Eastern gamma grass, Tripsacum dactyloides, Pink muhly grass, Muhlenbergia capillaris
FOUNTAIN GRASS, Pennisetum alopecuroides	Pink muhly grass, Muhlenbergia cappillaris, Bottlebrush grass, Elymus hystrix

ADDITIONAL LINKS

1. Low-Impact Development Center, Inc.
   - ❖ Offers helpful information about green roof benefits, maintenance, specifications and sizing requirements, and costs
   - ❖ Includes sample engineering drawings and sizing guidance

2. South Carolina Native Plant Society
   - ❖ Offers lectures, symposiums and field trips
   - ❖ Useful resource for articles and information on native plants to the Upstate
   - ❖ For native plant alternatives (http://www.scnps.org/PDFs/SCNPS_Alternatives.pdf)

3. North Carolina Cooperative Extension
   - ❖ Provides criteria for plant selection for rain gardens and bioretention facilities

4. Southeastern Flora
   - ❖ Great resource for identifying native plants; contains plants and pictures

5. United States Environmental Protection Agency
   - ❖ Contains general information on native plants, including guidance on how to replace a conventional lawn with native landscaping, and how to maintain native plants

6. North Carolina State University – Urban Horticulture
   - ❖ Great resource for every aspect of planting

7. Kudzu Coalition
   - ❖ Great resource for learning about kudzu and chemical-free elimination techniques

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