

Life on the Coast is Easy?

How native plants are built for life near the beach



Matt Collogan
Area Natural Resources Agent
Brunswick County Center



Coastal Landscaping Challenges

- Poor, sandy soil (also areas of hydric, organic soils)
- Heat
- Drought conditions
- Frequent storms
- Saltwater exposure and soil salinity
- Strong coastal winds
- Salt-aerosol damage



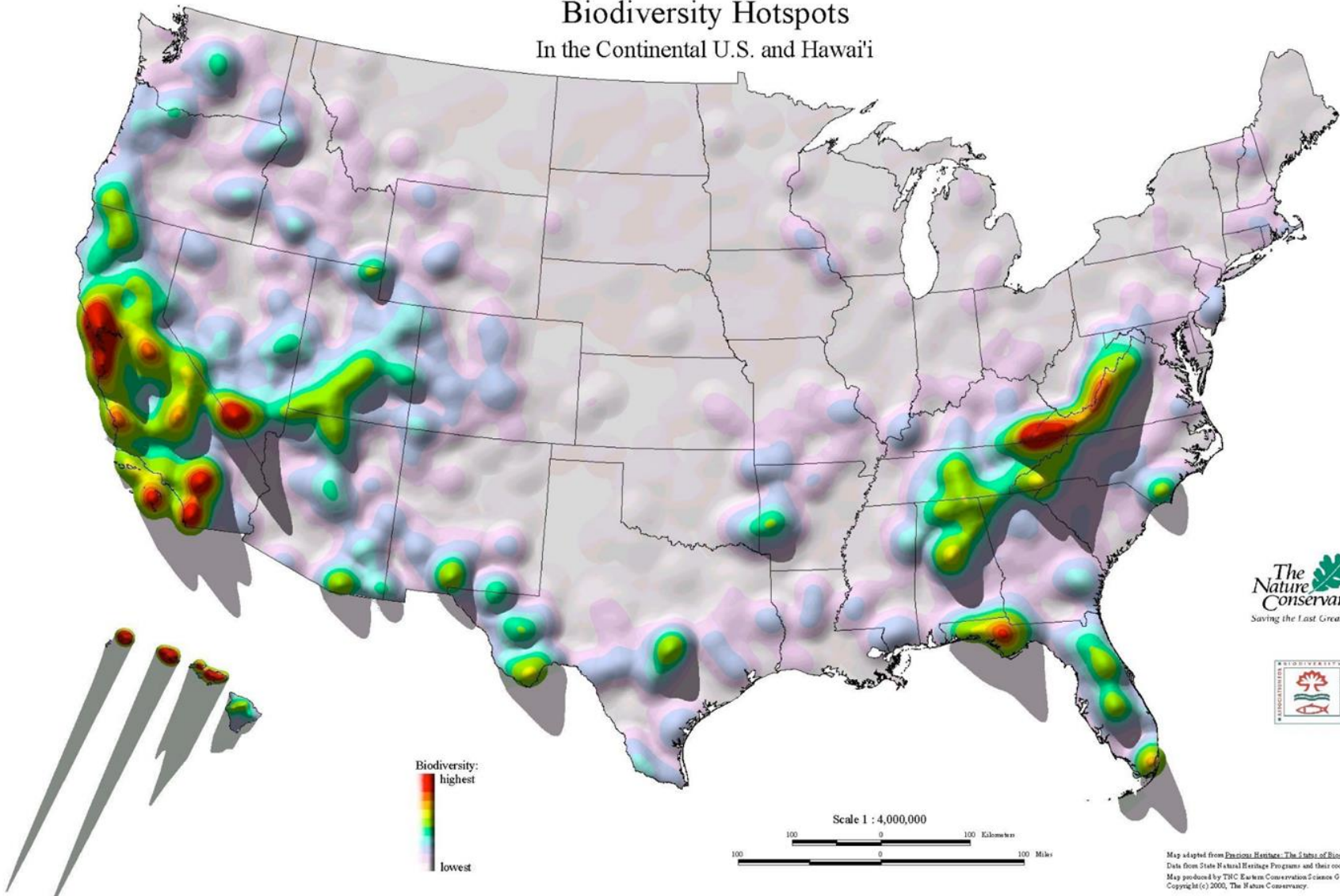
Where are we starting?

- Brand new construction
- New developments with small lots
- Rapid development, clear cutting
- Soil compaction
- Removal of topsoil
- Water drainage issues
- Polluted runoff



NC is a biodiversity hotspot!

Biodiversity Hotspots
In the Continental U.S. and Hawai'i



The Nature Conservancy®
Saving the Last Great Places



Map adapted from *Endemic Heritage: The Status of Biodiversity in the United States*.
Data from State Natural Heritage Programs and their cooperators.
Map produced by The Nature Conservancy Science GIS, 5/19/00.
Copyright (c) 2000, The Nature Conservancy.

What is “Native”?

Species that evolve naturally in an environment without human intervention

Plants are adapted to local soil and climate conditions over thousands of years

Co-evolve with other species and form interdependent and highly specialized relationships that are necessary for the other’s survival

Much of our coast represents the Floristic transition between the Virginian and Carolinian biogeographic regions



- Uniquely adapted to local environmental conditions
- Generally require less care and less water once established
- Protect local water quality by reducing the need for fertilizer
- Provide ecosystem services: clean air & water, heat mitigation, flood abatement, decreased crime, slower traffic, improved mental & physical health
- essential habitat for our native insects and wildlife

Why plant Natives?



Adding Native Plants: base of food web



Ginkgo = 0



Maple = 285



River Birch = 413

Data from Doug Tallamy's Research on Lepidopteran Use of Native and Non-native Plants

Woody Plants

Common Name	Plant Genus	Butterfly/moth species supported
Oak	Quercus	534
Black cherry	Prunus	456
Willow	Salix	455
Birch	Betula	413
Poplar	Populus	368
Crabapple	Malus	311
Blueberry	Vaccinium	288
Maple	Acer	285
Elm	Ulmus	213
Pine	Pinus	203
Hickory	Carya	200
Hawthorn	Crataegus	159
Spruce	Picea	156
Alder	Alnus	156
Basswood	Tilia	150
Ash	Fraxinus	150
Rose	Rosa	139
Filbert	Corylus	131
Walnut	Juglans	130
Beech	Fagus	126
Chestnut	Castanea	125



Herbaceous Plants

Common Name	Plant Genus	Butterfly/moth species supported
Goldenrod	Solidago	115
Asters	Aster	112
Sunflower	Helianthus	73
Joe pye, Boneset	Eupatorium	42
Morning glory	Ipomoea	39
Sedges	Carex	36
Honeysuckle	Lonicera	36
Lupine	Lupinus	33
Violets	Viola	29
Geraniums	Geranium	23
Black-eyed susan	Rudbeckia	17
Iris	Iris	17
Evening primrose	Oenothera	16
Milkweed	Asclepias	12
Verbena	Verbena	11
Beardtongue	Penstemon	8
Phlox	Phlox	8
Bee balm	Monarda	7
Veronica	Veronica	6
Little bluestem	Schizachyrium	6
Cardinal flower	Lobelia	4

Carolina Chickadee

Length = 4.75"
Weight = 10.5g
(two nickels)





To raise one
clutch (2-3
birds) to
fledge (plus
21 days) =
10,000
caterpillars!!!

Bird seed
and winter
berries

Moths & Butterflies as Food

- Worldwide 37% of animal species are **herbivorous insects**
- Beetles and Lepidoptera
- Convert plant tissues of all types to protein, fat
- 96% of bird species eat insects



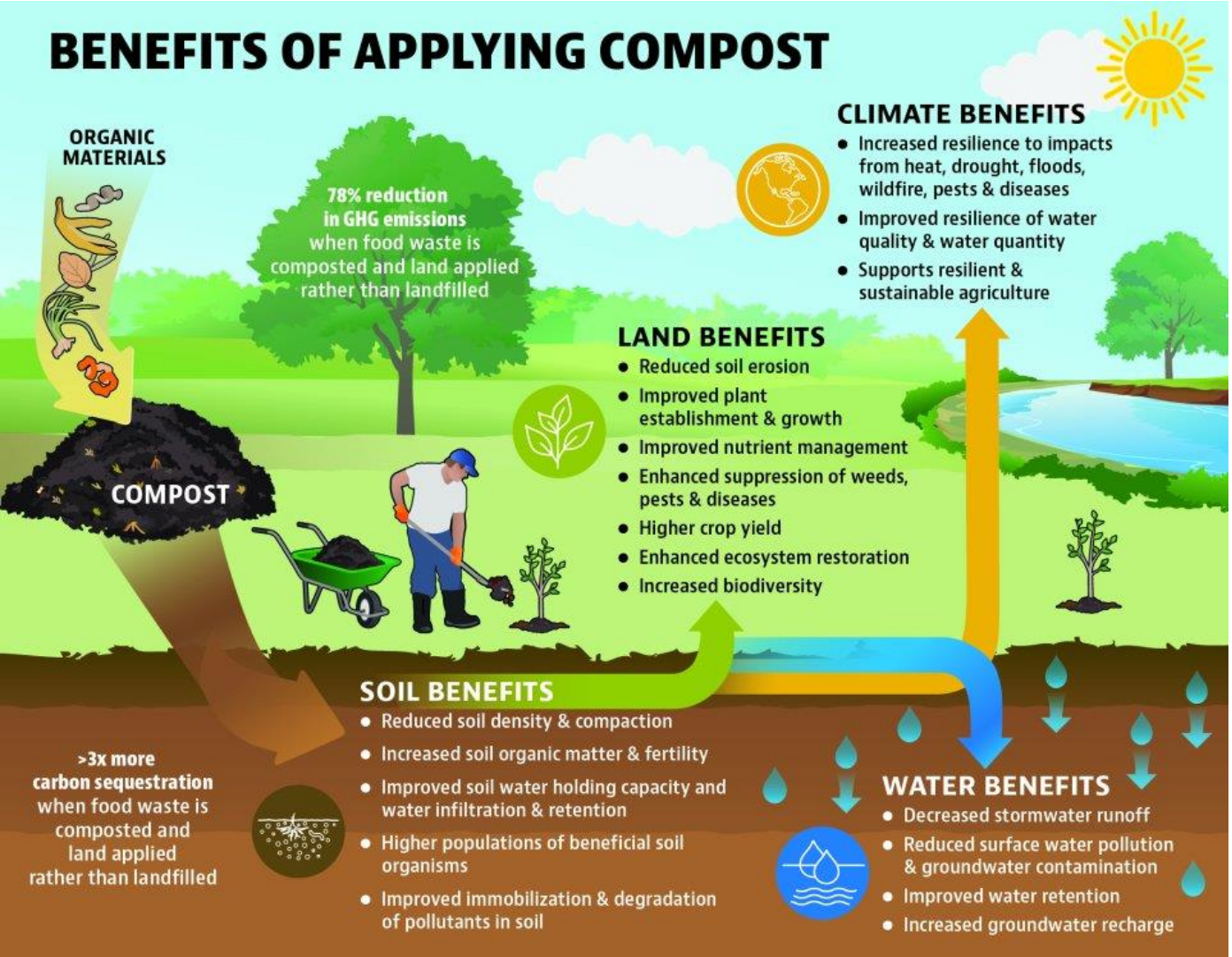
Pound for pound insects have more protein than beef—high in valuable energy! Source of carotene, birds can't make on own.

Nature at Home Principles

- 1 Add native plants: right plant, right place
- 2 Remove non-native invasives
- 3 Manage stormwater
- 4 Increase garden beds; reduce lawns
- 5 Reduce use of synthetic herbicides, pesticides, fertilizers
- 6 Leave the leaves; save the stems
- 7 Provide wildlife structures and water features
- 8 Reduce nighttime light pollution



BENEFITS OF APPLYING COMPOST



carolinacompost.com/

Chapter of the US Composting Council
Graphic source: EPA



Stormwater Runoff Pollutes



Runoff from Roof

Runoff from Gutters

Runoff from Street

- RUNOFF PICKS UP:**
- Pet Waste
 - Fertilizers
 - Motor Oil
 - Detergents
 - Chemicals
 - Litter

STORMWATER RUNOFF CARRIES POLLUTANTS INTO OUR WATERWAYS.

Achieving the Post-construction Soil Standard

{ Meeting King County's regulations to preserve and restore healthy soils on developments in King County }



Low Impact Development - LID



Practices that prevent stormwater runoff from polluting waterways by mimicking a site's natural surface water & groundwater hydrology

- Disconnected impervious surfaces
- Preservation of open space/natural features
- Rain Gardens or Bioretention Areas

- Porous pavement
- Water harvesting (rain barrels, cisterns)
- Low-input native landscaping

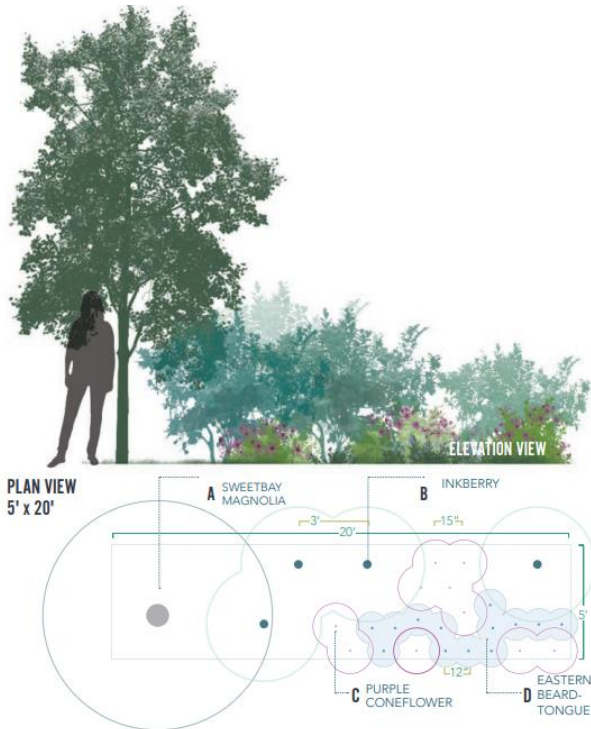
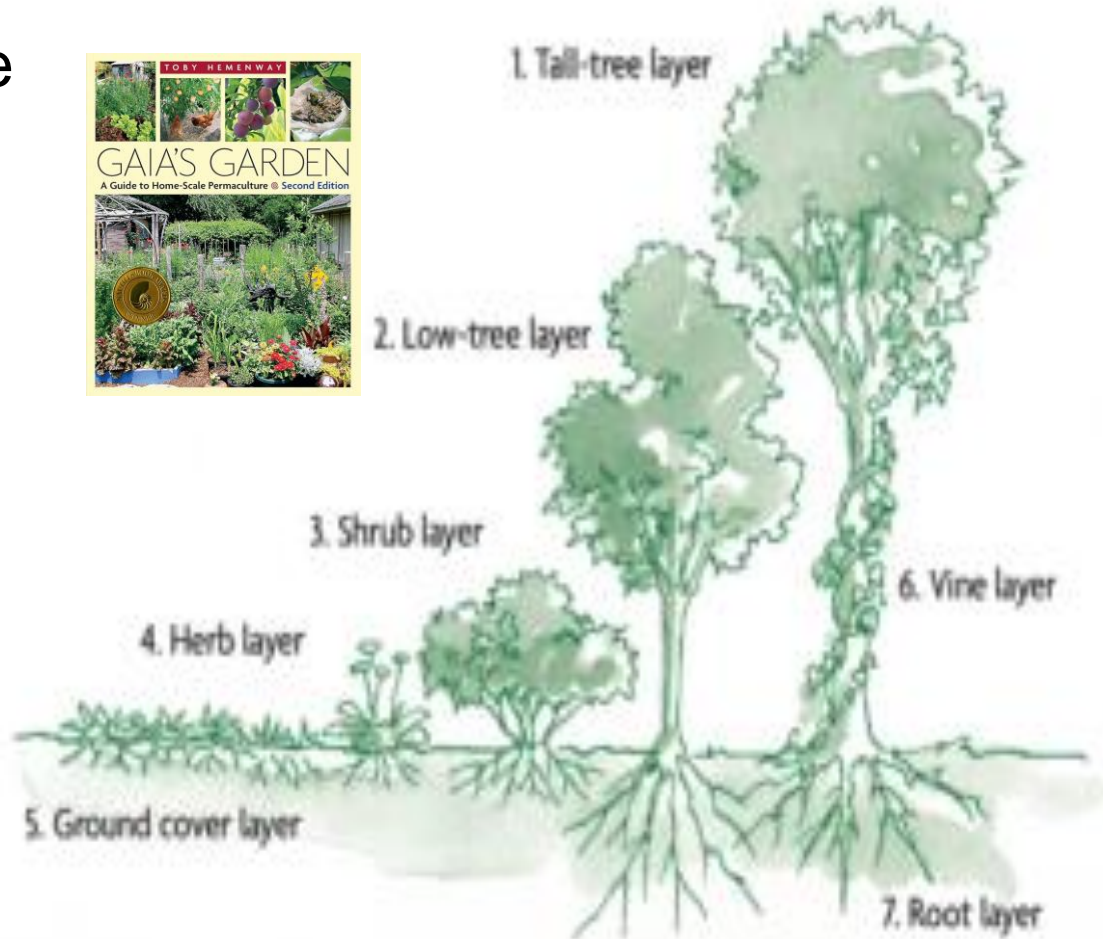
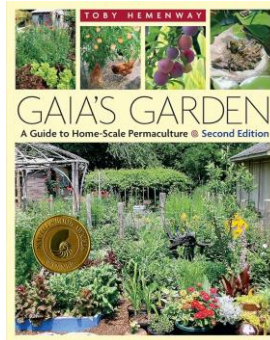
Right Plant, Right Place

- Native alone does not mean a plant is well suited to a site
- Know your soil, hydrology and habitat



Diversity in Species and Structure

- Five layers of plantings
- Canopy trees if possible
- Try for at least three layers



Lucy Bradley CCO



Scott ZonaCC BY NC 2.0

Live Oak

Quercus virginiana

40-80' tall, 40-100'
spread, not a “true”
evergreen

Adaptable to both clay
and sandy soils that are
acidic and well-drained

Most wind resistant tree

‘Cathedral’ cultivar



Imperial Moth (*Eacles imperialis*)

Hosts: *Pinus* sp., *Acer* sp., *Quercus* sp. *Liquidambar styraciflua*, *Sassafras albidum*



Gitta Hasing



Shumard Oak

Quercus shumardii

40-80' tall, 40-50' spread

Adaptable to wide variety of soils, very stress tolerant

Great tree for urban settings

Wildlife value





Nicholas A. Tonelli
CC BY 2.0



JanetandPhil
CC BY-NC-ND 2.0

Eastern Red Cedar

Juniperus virginiana

Evergreen tree that can grow to 30+' tall, width 12-24'

Fast growing conifer

Extremely drought tolerant

Provides cover and food for wildlife

Sweetbay Magnolia

Magnolia virginiana

20+' tall, semi-evergreen tree or multi-stemmed shrub, deer resistant, 10-20' width

Fragrant flowers

Larval host for Spicebush Swallowtail and Eastern Tiger Swallowtail butterflies

Medium-high wind resistance



Jim RobbinsCC BY-NC-ND 4.0



RachelgreenbeltCC-BY-SA 2.0



Eastern Tiger Swallowtail Butterfly

UNCW Campus- Longleaf Pine and Sweetbay Magnolia





American Holly

Ilex opaca

40-60' tall, full sun to part shade

Will take a broad range of soils and is pollution tolerant

Flowers are attractive to pollinators and fruits for wildlife

Highly wind resistant



Yaupon Holly

Ilex vomitoria

Large shrub or small tree, can reach 10-20' tall, 8-12' width

Very drought tolerant

Female plants produce attractive red berries

Very attractive to pollinators





Dwarf Yaupon Holly

Ilex vomitoria 'Nana'

Dense, compact, evergreen shrub 3-5' tall, 3-6' width

Drought and salt spray tolerant

Grows rapidly

Has a more formal appearance





Inkberry

Ilex glabra

Evergreen shrub

Slow growing, 5-8' tall

Tolerates a variety of soils, moderately salt tolerant

Cover and food for birds and pollinators enjoy flowers

Dwarf cultivar:
'Shamrock'
3-4' tall



Debbie Roos



Dwarf Palmetto

Sabal minor

2-5' tall, 4-6' width

Drought and moderately salt tolerant

Most cold hardy native palm

Fruits eaten by robins, raccoons, and other birds and mammals



Wms1916CC BY-NC-ND 2.0



Wax Myrtle

Myrica cerifera

Evergreen tree/shrub,
15-20' at maturity

Native to NC marshes,
swamps, fresh-brackish
streams

Great for erosion, wind
and salt spray tolerant

Wildlife value



Beautyberry

Callicarpa americana

3-8' tall, Full sun

Deciduous Shrub

Fruits appear August-Oct
Valuable food source for
songbirds and small
mammals



Yucca

Yucca filamentosa

Evergreen sword-shaped leaves with curly filaments

Prefers coarse, sandy soils in full sun

Tall panicle of white flowers attracts pollinators



'Color Guard'



Muhly Grass

Muhlenbergia capillaris

4' tall, 3' width

Long-lived, little to no insect or disease pests and highly resistant to deer grazing

Tolerates heat, humidity, drought, poor soil and is highly salt tolerant





Little Bluestem

Schizachyrium scoparium

2' tall, Vigorous, long rooted grass

Good for erosion control:
Stream banks, slopes,
rain gardens

Larval host plant for
skippers, seeds eaten by
birds

Cut back in March





Jim RobbinsCC BY-NC-ND 4.0

Cultivar 'Northwind'

Switchgrass

Panicum virgatum

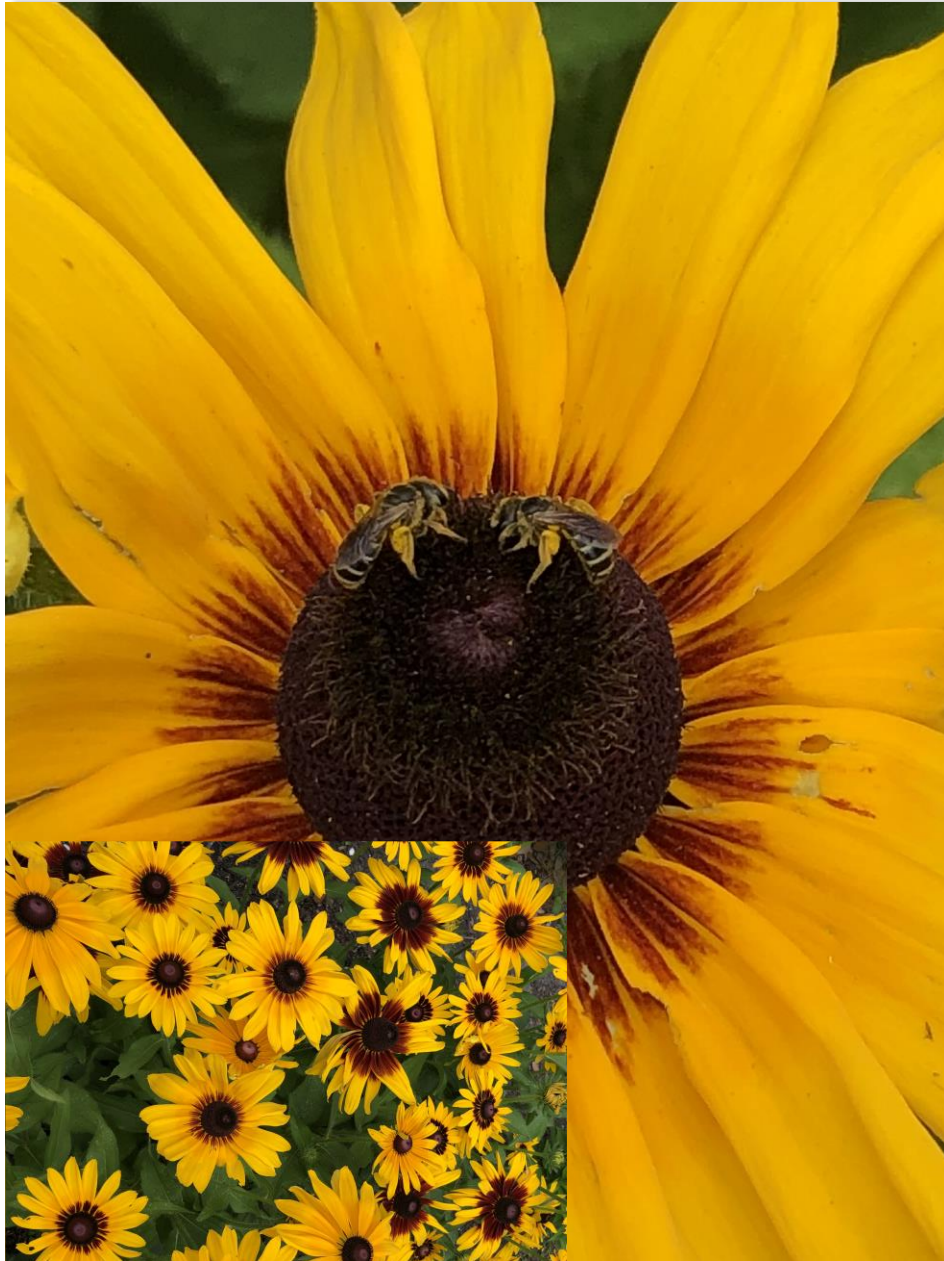
3-5' tall, full sun

Moist clay or sandy soils

Bluish cast in the summer, pink flowers in fall

Slightly salt tolerant

Plant in masses



Black-eyed Susan

Rudbeckia hirta

Full Sun

Blooms summer through fall

Short lived perennial, easily reseeds



Blanket Flower

Gaillardia pulchella

Naturalized in NC

Barrier island, sandy
soils, full sun

Drought and salt tolerant

Blooms summer to fall

Attracts butterflies



Spotted Horsemint

Monarda punctata

2-4' tall

Herbaceous perennial

Drought tolerant

Excellent cut flower

Deer and rabbit resistant





Beautiful, Beneficial Goldenrods...

solidago spp



...different
from ragweed!

RAGWEED vs GOLDENROD

<p>Green Flowers → Lobed Leaves</p>	<p>Yellow Flowers ↓ Unlobed Leaves</p>
Common Ragweed <i>Ambrosia artemisiifolia</i>	Goldenrod <i>Solidago sp.</i>

TORONTO Call 311



Solidago odora:
(anise-scented goldenrod)
Early and short-statured



S. speciosa (showy) & *S. rigidum*
(prairie):
Back of the border, late summer
pollinator magnets

The Goldenrods *Solidago spp*



Solidago
'Fireworks':
Heralds the fall,
evergreen foliage



S. sempervirens:
(seaside goldenrod)
Late fall monarch favorite,
prefers low nutrient soils



Surf City Roundabout



Eastern Red Cedar
Dwarf Palmetto
Dwarf Yaupon Holly
Yaupon Holly
Magnolia 'Little Gem'
Laurel Oak or
Darlington Oak



COASTAL LANDSCAPES INITIATIVE



- Public & private sector partners collaborating to encourage sustainable practices in coastal communities by fostering coastal landscapes that are beautiful, functional, cost efficient and environmentally friendly
- <https://ncseagrant.ncsu.edu/program-areas/healthy-ecosystems/coastal-landscapes>
- “Native Plant Picks” videos featuring beautiful, maintainable, cost-efficient, and environmentally beneficial selections adapted to thrive in the harsh conditions of coastal NC, strong sun and wind, the dry, sandy soil, and the salty air and water; check out Sea Grant’s Youtube Channel
<https://ncseagrant.ncsu.edu/news/2021/09/new-video-series-highlights-native-plants-for-coastal-landscapes/>
- Design Templates
- Booklet (A Native Plant Guide Provided by the Coastal Landscapes Initiative – 34 plants) and Brochure
- Videos, webinars, presentations



CLI Design Templates

Screening Designs

- Screening with Trees
- Pollinator-Friendly Border
- Screening High & Low
- Foundation
- Evergreen Screen

Border Designs

- Low Evergreen Border
- Bird-Friendly Screen
- Shoreline Border
- Screening with Vines
- Filter strip

POLLINATOR-FRIENDLY BORDER

FOR SUNNY AREAS WITH DRY TO MOIST SOIL

SUN: ☀️☀️☀️
SOIL MOISTURE: 🌧️🌧️🌧️
SEASONAL COLOR: APR-DEC

DESCRIPTION
The combination of flowering perennials, native ornamental grasses and shrubs add year-round interest with texture and color. This design also provides important foraging grounds and habitat for birds, bees and butterflies. Butterfly weed (or milkweed) is a host plant for monarch butterflies. It also readily seeds, so patient gardeners can plant less, letting it naturally colonize over time. If exposure to salt spray is a concern, search for more salt-tolerant plants.

ALTERNATIVE
Shrub substitutes: For dry soils, Adam's needle (*Succa filamentosa*) is a good choice. Otherwise, opt for inkberry (*Ilex glabra*).

Perennial substitutes: eastern smooth beardtongue (*Penstemon laevisetulus*), sand coreopsis (*Coreopsis lanceolata*) or more butterfly weed. Also, add a tall (6-foot) semi-evergreen bush like penstema (*Penstemon pulcherrimus*) on the back of the border for year-round structure.

MAINTENANCE
Prune cloths in winter or early spring, if needed. Cut back grasses in late winter or early spring. Leave an 8-to-12-inch crown on mully grass.

PLANT SELECTION

ID	QTY	COMMON NAME	SCIENTIFIC NAME	PLANT TYPE	SPACING	J	F	R	A	M	J	A	S	O	N	D
A	3	Sweet pepperbush	<i>Callicarpa americana</i>	SHRUB	3' O.C.											
B	16	Butterfly weed	<i>Asclepias tuberosa</i>	PERENNIAL	12" O.C.											
C	3	Blue wild indigo	<i>Baptisia australis</i>	PERENNIAL	18" O.C.											
D	6	Purple coneflower	<i>Echinacea purpurea</i>	PERENNIAL	15" O.C.											
E	6	Mully grass	<i>Muhlenbergia verticillata</i>	GRASS	2' O.C.											

BIRD-FRIENDLY SCREEN

FOR DRY TO MOIST AREAS WITH SUN TO PART-SHADE

SUN: ☀️☀️☀️
SOIL MOISTURE: 🌧️🌧️🌧️
SEASONAL COLOR: MAY-DEC



DESCRIPTION
All plants in this design attract birds to the yard. Wax myrtle, inkberry and beautyberry produce abundant berries in late summer and autumn that are irresistible to birds and other backyard wildlife. Many birds also eat the seeds of the orange coneflower.

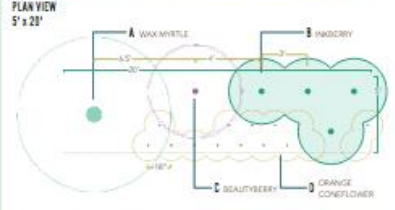
This design provides a screen to increase privacy or block unwanted views. It also creates a stand-alone garden area for observing wildlife. Only female plants of wax myrtle and inkberry produce berries, so try to select a female plant at the nursery and ensure there are male plants nearby for pollination (in a neighbor's yard or a natural area). This approach is also true for the alternates below.

Wax myrtle and beautyberry are fast-growing while inkberry is slow-growing.

ALTERNATIVE
All of these plants should be readily available, if you need less height, dwarf varieties exist for most of the shrubs.

Shrub substitutes: For wax myrtle, try yaupon holly (*Ilex vomitoria*). For beautyberry, choose verticillata holly (*Ilex verticillata*) or red chokeberry (*Aronia arbutifolia*). For inkberry, try deer palmetto (*Sabal minor*) or deciduous coniberry (*Symphoricarpos orbiculatus*).

MAINTENANCE
If needed, shrubs can be pruned in late autumn or winter. Beautyberry can be pruned more than other shrubs if a smaller size is desired, but it also thrives if left to grow. Wax myrtle recovers quickly from minor storm damage, but broken branches or damaged bark should be removed.



PLANT SELECTION

ID	QTY	COMMON NAME	SCIENTIFIC NAME	PLANT TYPE	SPACING	J	F	R	A	M	J	A	S	O	N	D
A	1	Wax myrtle	<i>Mycia carolin</i>	SHRUB	4.5' O.C.											
B	4	Inkberry	<i>Ilex glabra</i>	SHRUB	4.5' O.C.											
C	1	American beautyberry	<i>Callicarpa americana</i>	SHRUB	3' O.C.											
D	15	Orange coneflower	<i>Rudbeckia fulgida</i>	PERENNIAL	18" O.C.											

NEW! Containers

Greening Your Space

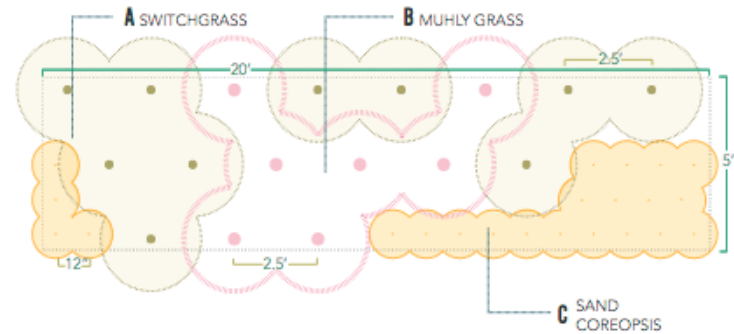
Creating Eco-Friendly Container Gardens for Coastal North Carolina

From the COASTAL LANDSCAPES INITIATIVE

FILTER STRIP

FOR SUNNY AREAS WITH DRY TO MOIST SOIL

SUN: ☀️ 🌬️
SOIL MOISTURE: 💧 - 💧
SEASONAL COLOR: SPRING & FALL



COASTAL
NORTH CAROLINA



PLANT THIS INSTEAD!

Eco-friendly Alternatives to Harmful Ornamental Plants



From the
**COASTAL
LANDSCAPES
INITIATIVE**

SPECIMEN TREES



AVOID THESE TREES



CALLERY PEAR
Pyrus calleryana 'Bradford' and other cultivars



POPCORN TREE/ CHINESE TALLOW
Triadica sebifera



MIMOSA
Albizia julibrissin

PLANT THIS INSTEAD



SERVICEBERRY *Amelanchier canadensis*

This deciduous tree or small shrub features slightly fragrant white flowers that appear before the leaves in early spring. In late spring, tasty purple-red berries appear, which songbirds and various mammals eat. Its early blooms are important to pollinators, and the *Amelanchier* genus supports over 94 species of butterflies and moths. Its attractive fall foliage is yellow to bright orange-red.

TIP: A dark foliage backdrop helps to highlight this tree's attractive flower, leaf, and bark.

LIGHT: Full sun to part shade **SOIL:** Moist
HEIGHT: 10'-20' **WIDTH:** 15'-20'



REDBUD *Cercis canadensis*

In early spring before foliage emerges, this deciduous, multi-trunked understory tree blooms profusely with stunning pea-like rose-purple edible flowers which cover the bare branches. Its heart-shaped leaves turn pale yellow to greenish yellow in the fall. Bean-like seed pods often remain through the winter. This tree is a larval host plant for 12 species of Lepidoptera, the insect group that includes butterflies and moths. Birds feed on redbud seeds.

LIGHT: Full sun to part shade **SOIL:** Occasionally dry to moist
HEIGHT: 20'-30' **WIDTH:** 25'-35'



FRINGETREE *Chionanthus virginicus*

A showy, deciduous, multi-trunked tree with an abundance of softly fragrant fringe-like white flowers that appear in spring. The leaves turn yellow in autumn. The tree is used for food and shelter by many animals including birds, bees, and other pollinators. It is a host plant to the Fawn Sphinx and Rustic Sphinx moths.

TIP: Plant it in a mass (large group) or as a specimen.

LIGHT: Full sun to part shade **SOIL:** Occasionally dry to moist
HEIGHT: 12'-30' **WIDTH:** 12'-20'

MORE SPECIMEN TREES

Flowering Dogwood *Cornus florida*
Sweetbay Magnolia *Magnolia virginiana*
Blackhaw *Viburnum prunifolium*

Red Mulberry *Morus rubra*
Sparkleberry *Vaccinium arboreum*
Red Buckeye *Aesculus pavia*

Carolina Cherry Laurel *Prunus caroliniana*
Hawthorn *Crataegus phaeopyrum*
Red Maple *Acer rubrum*

Nature At Home



newhanover.ces.ncsu.edu/nature-at-home/resources/

Consumer Horticulture

Horticulture Programs
Nature at Home, School Gardens & Garbage to Gardens

Pesticide Classes

Native Plants

Cape Fear Native Plant Festival-Re-Imagined!

Extension Master GardenerSM Volunteer Program

Extension Master Gardener Plant Sale
EMGVA Grants

New Hanover County 4-H

Enrollment: 4-H Online 2.0 4-H Programs
4-H Clubs in New Hanover County,
4-H Teen Leaders Council

4-H School Enrichment
Embryology School
Enrichment Program

4-H Events and Awards ...
4-H Presentations / Public
Speaking, 4-H Project Record
Books, Annual 4-H Food Drive
Caring HEARTS, Helping HANDS

Therapeutic Horticulture

Simple Activity Sheets Accessibility in
School Gardens Campus Nature Rx ...

Family & Consumer Sciences in
New Hanover County

Nature at Home Program Resources

> en Español / em Português

Nature at Home Resources

- [Homeowner Folder Contents](#)
- [Nature at Home Practices and Principles](#)
- [Nature at Home Brochure](#)
- [Recommended Native Plants for Southeastern NC](#)
- [Coastal Native Plant Sources \(NC\)](#)
- [Cape Fear Area Garden Centers](#)

Helpful Links for Eco-Friendly Landscaping

- [How to Create Wildlife-Friendly Landscapes](#)
- [Coastal Landscapes Initiative](#) (NC State) Includes design templates, native plant guides, brochures, and more
- [Landscaping for Wildlife with Native Plants](#) (NC State Extension)
- [Butterflies in Your Backyard](#) (NC State Extension)
- [Managing Backyard and other Urban Habitat for Birds](#) (NC State Extension)
- [How to Make Wildlife Friendly Landscapes](#) (NC State Extension)

<https://newhanover.ces.ncsu.edu/nature-at-home/>

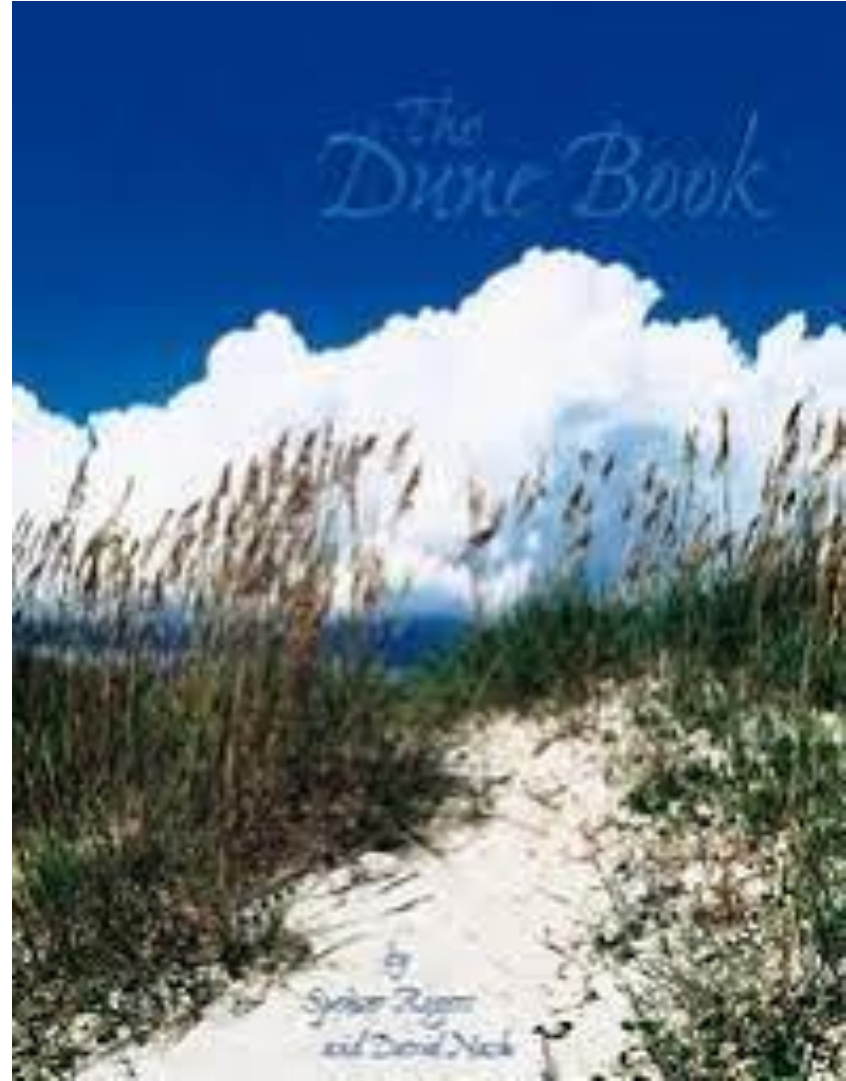
Native Plants for Coastal North Carolina Landscapes

"We can each make a measurable difference almost immediately by planting a native nearby. As gardeners and stewards of our land, we have never been so empowered—and the ecological stakes have never been so high."

Dr. Doug Tallamy



The Dune Book



Matt Collogan

- Area Natural Resources Agent – NC Cooperative Extension
Brunswick, New Hanover, Pender counties
 - Plant Clinic at NHC Arboretum – Monday through Friday, 10am-4pm,
6206 Oleander Drive, Wilmington, NC
 - mecollog@ncsu.edu
 - 910-253-2584
 - <https://brunswick.ces.ncsu.edu>
- Supervisor – New Hanover
Soil & Water Conservation
District
 - <https://soilwater.nhcgov.com/>

