

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



How can we increase nature-enhancing landscaping in coastal communities with easy, available, affordable, attractive solutions?



What do
you
notice
about
this yard?



Jane Harrison

What about this yard?



Barbara Doll

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
- Rapid development – forest and ag land being converted to housing, roads, commercial



What is a sustainable coastal landscape?

- Attractive
- Environmentally-friendly
- Well adapted to coastal region
- Storm-ready
- Functional & enjoyable
- Cost-efficient & manageable



Debbie Roos, NC State Extension

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



Residential Soil Problems

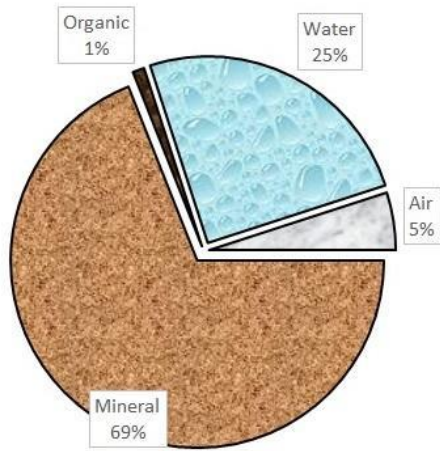
- Stripped topsoil
- Compaction
- Contamination



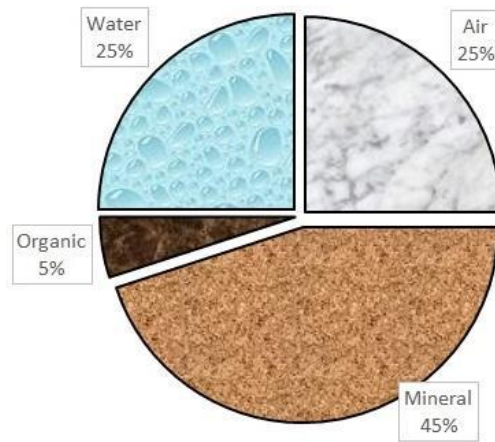
Charlotte Glen

Every yard was a construction site at some point in the past!

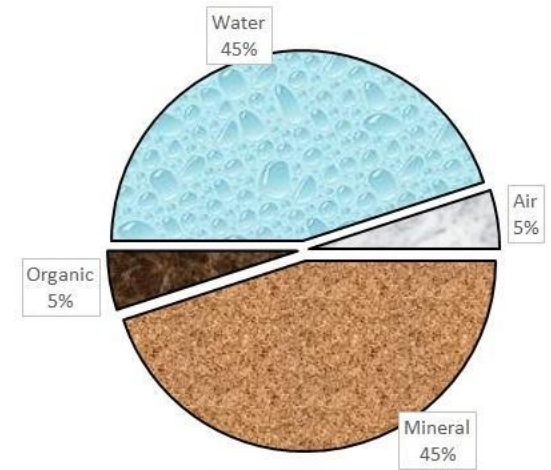
Soil Composition



Compacted



Ideal

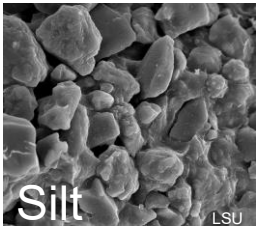


Poorly Drained

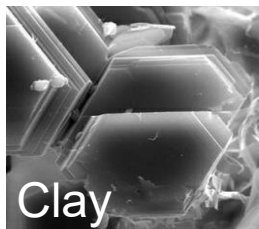
Soil Texture The Size and Shape of Soil Particles



- Course texture
- Feel gritty
- Quartz, calcium carbonate



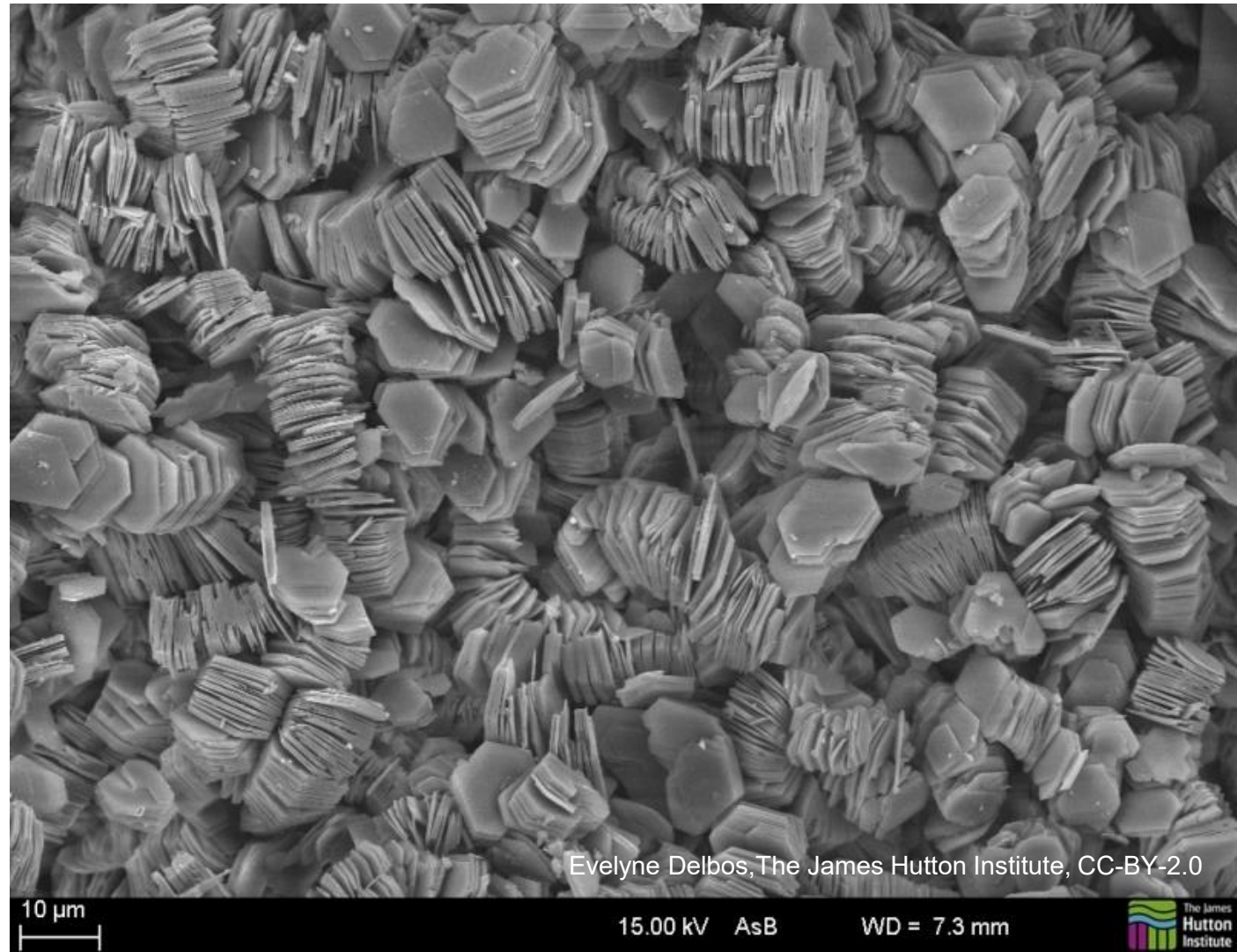
- Medium texture
- Feel like flour, slick
- Quartz, feldspar



- Fine texture
- Plate like structure
- Negatively charged (nutrients positively charged)
- Aluminum silicate sheets



Clay minerals are secondary minerals formed when primary minerals weather, dissolve, and recrystallize into new mineral structures in the soil. Large surface area; carry electrical charge.



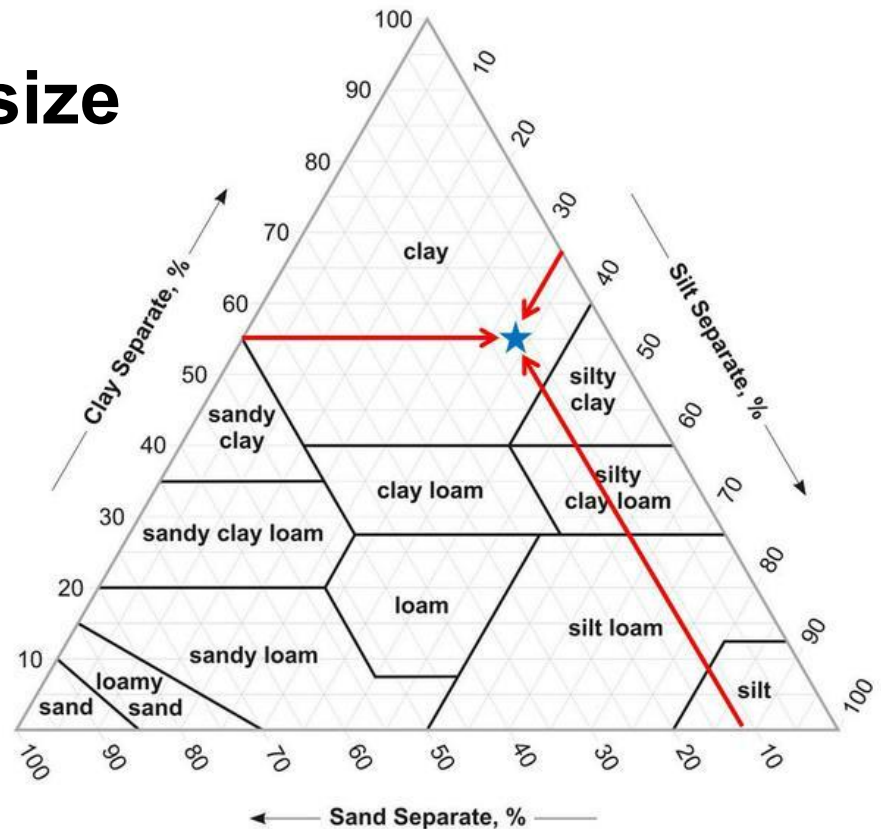
Soil Textural Class Proportion of Sand, Silt & Clay

Proportion effects pore size

- Water retention
- Nutrient retention

Jar Test

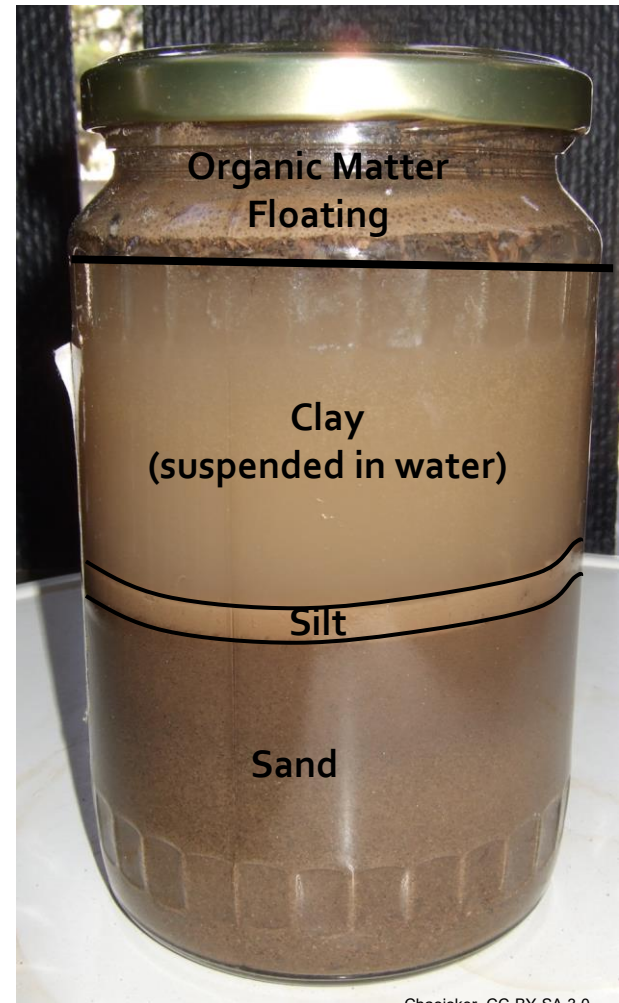
<https://hgic.clemson.edu/factsheet/soil-texture-analysis-the-jar-test/>



Soil Texture

- % Sand (gritty)
- % Silt (powdery dry, slippery wet)
- % Clay (hard dry, slippery wet)

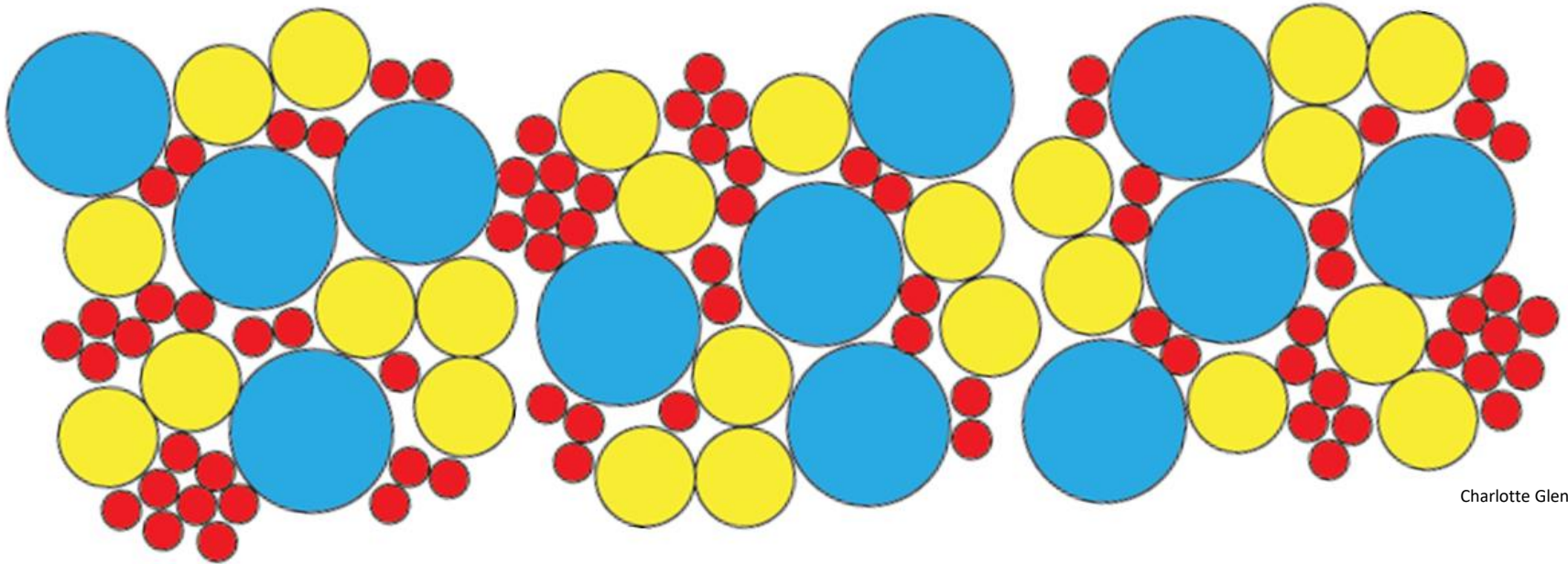
It is unrealistic to try to alter the texture of your soil.



Soil Texture (mineral portion)

Soil is a Mix of Sand, Silt and Clay

***cannot change the texture**

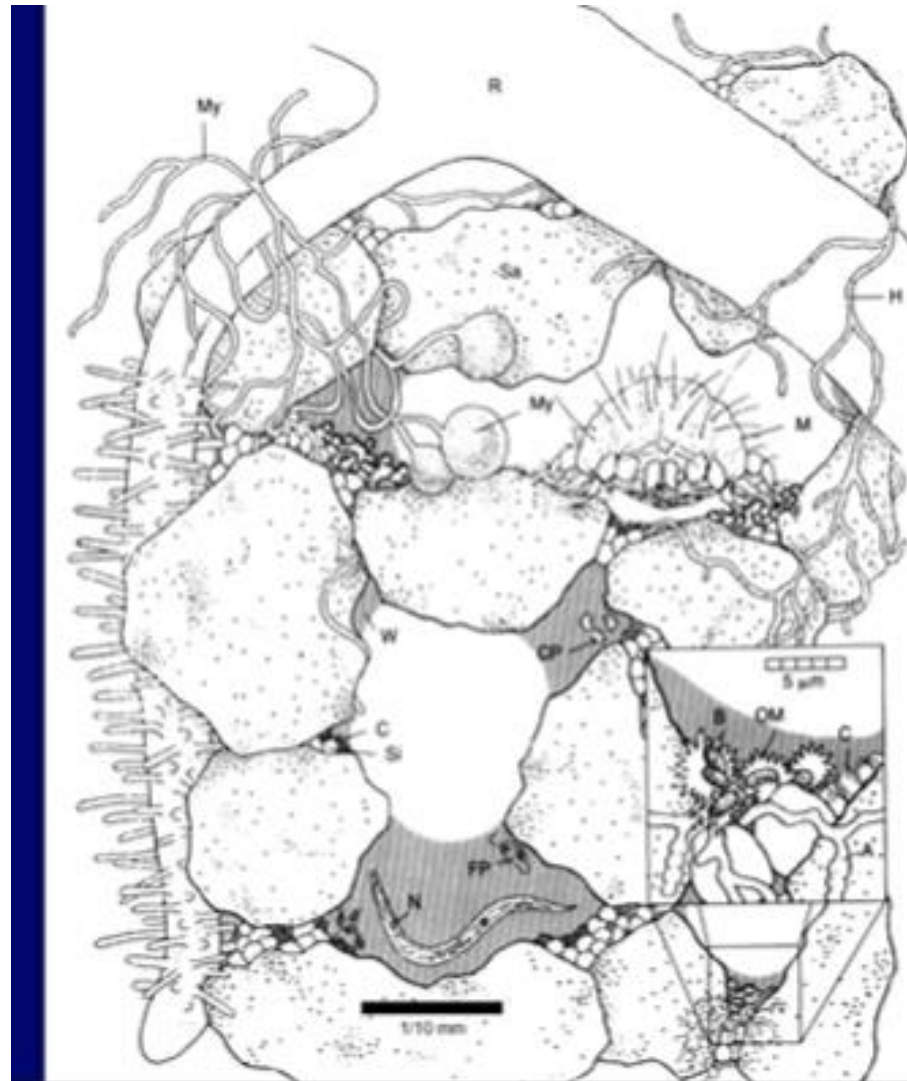


What Is Soil Organic Matter & Why It Matters

- SOM – non-mineral component of soil made of once living residues (at various stages of decomposition), currently living things, and substance synthesized by soil organisms
- SOM retains water and nutrients due to high surface area, porosity, cation-exchange potential

Soil life in SOM

- SOIL = HABITAT
- Plants sculpt soil with roots, leaving large pore that persists after plant death
- Microbes produce enzymes that lower activation of organic molecules into usable energy

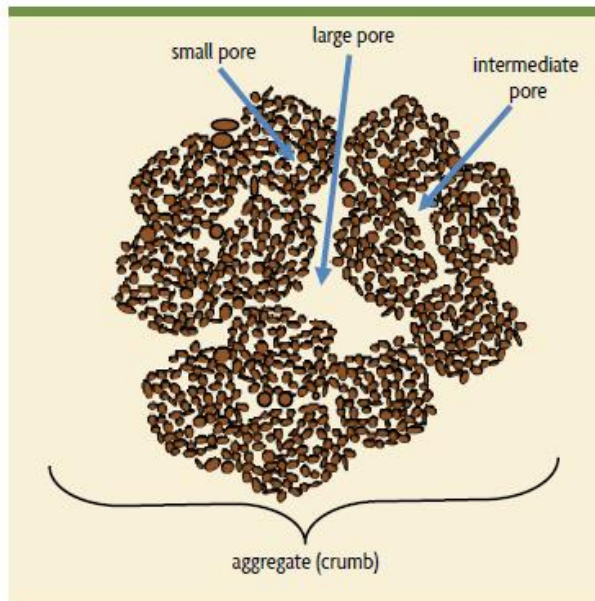


- B – Bacteria
- A – Actinomycetes
- My – Mycorrhizae
- H – Saprophytic fungus
- N – Nematode
- CP – Ciliate protozoa
- FP – Flagellate protozoa
- M – Mite

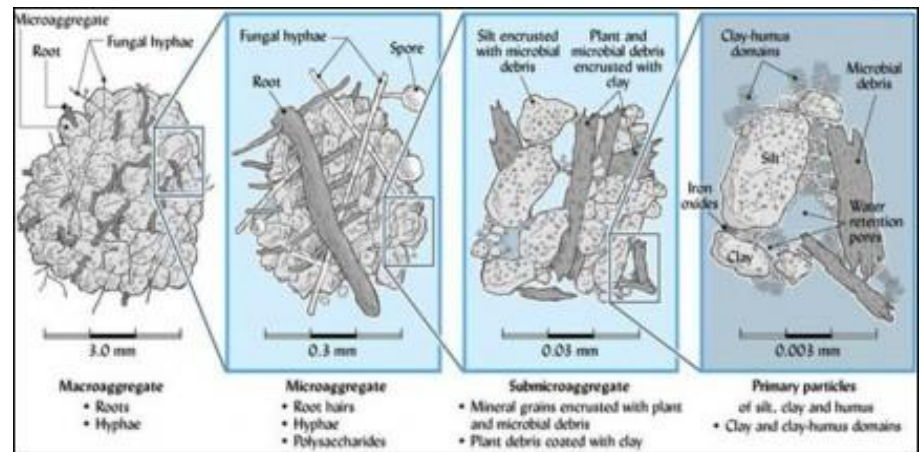
< 1mm

Soil Structure Aggregation of Soil Particles (organic matter)

Organic matter binds soil particles together into aggregates & creates pore spaces for water, air, and roots. Texture cannot be improved, but structure can be improved.



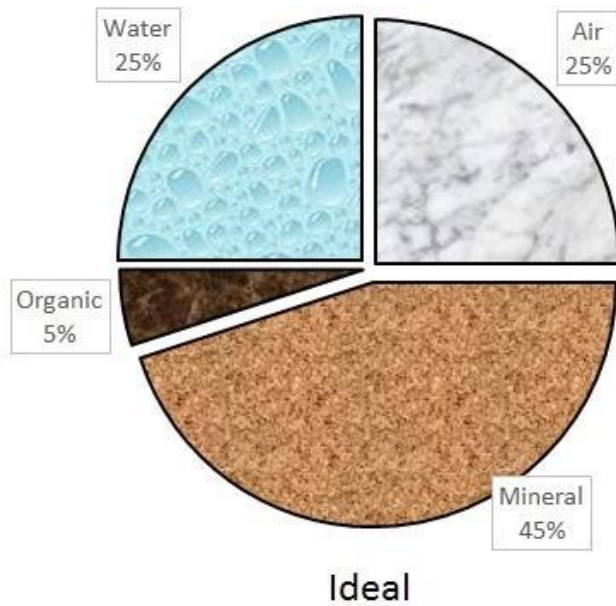
Building Soils for Better Crops
USDA SARE



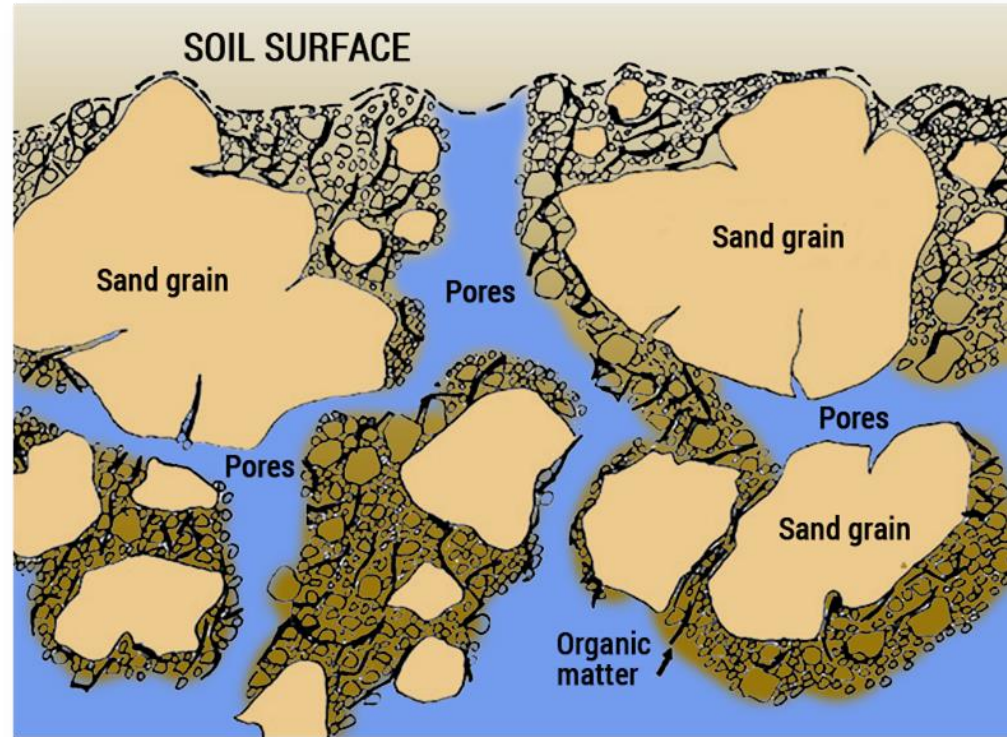
Brady and Weil 2010
Elements of the nature and properties of soils

***can improve the structure**

Soil Structure



NC State Extension Gardener Handbook



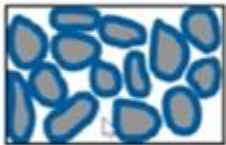
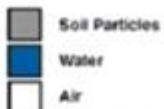
Charlotte Glen, NC State Author

- Organic matter helps aggregate soil.
- Aggregates create pore space, allowing water to enter and then be held in the soil.

Pore Space Management

Wide Pore Size Distribution

After Drainage



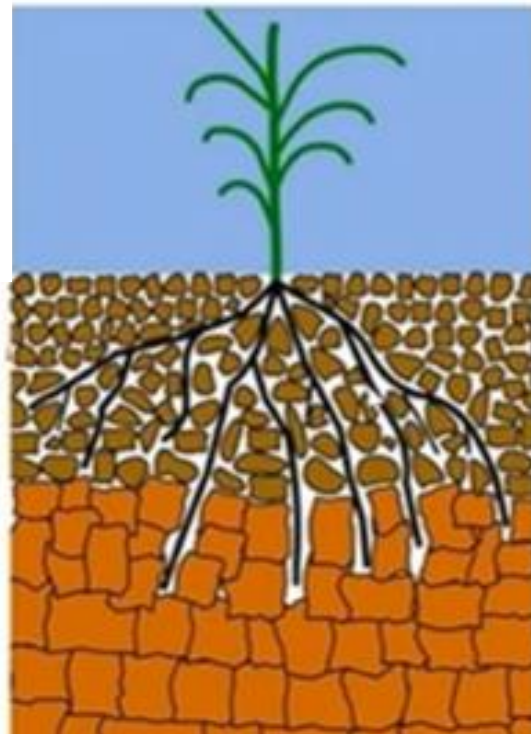
Non-compacted



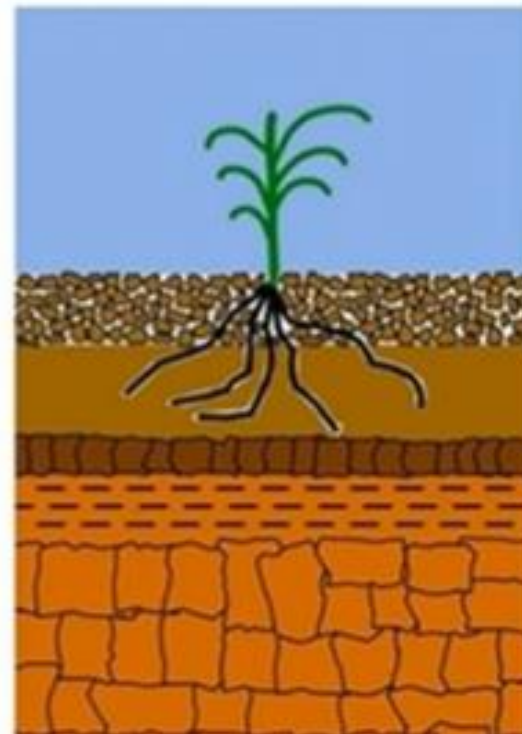
Compacted

Large reservoir for water & air

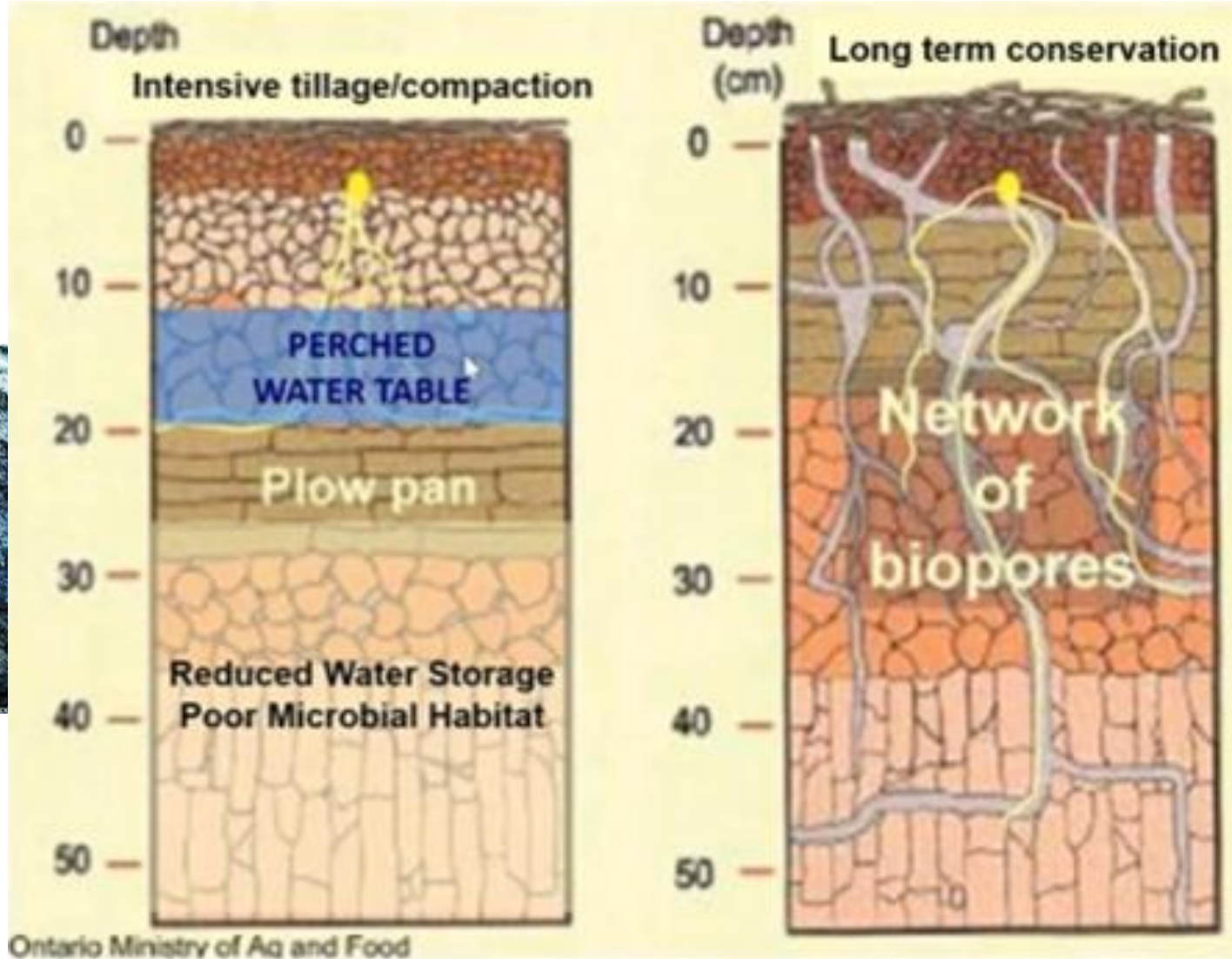
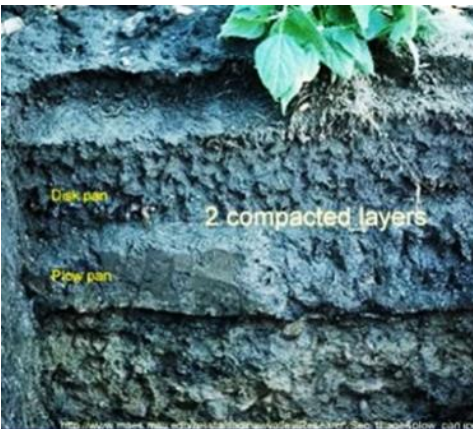
Not compacted soil



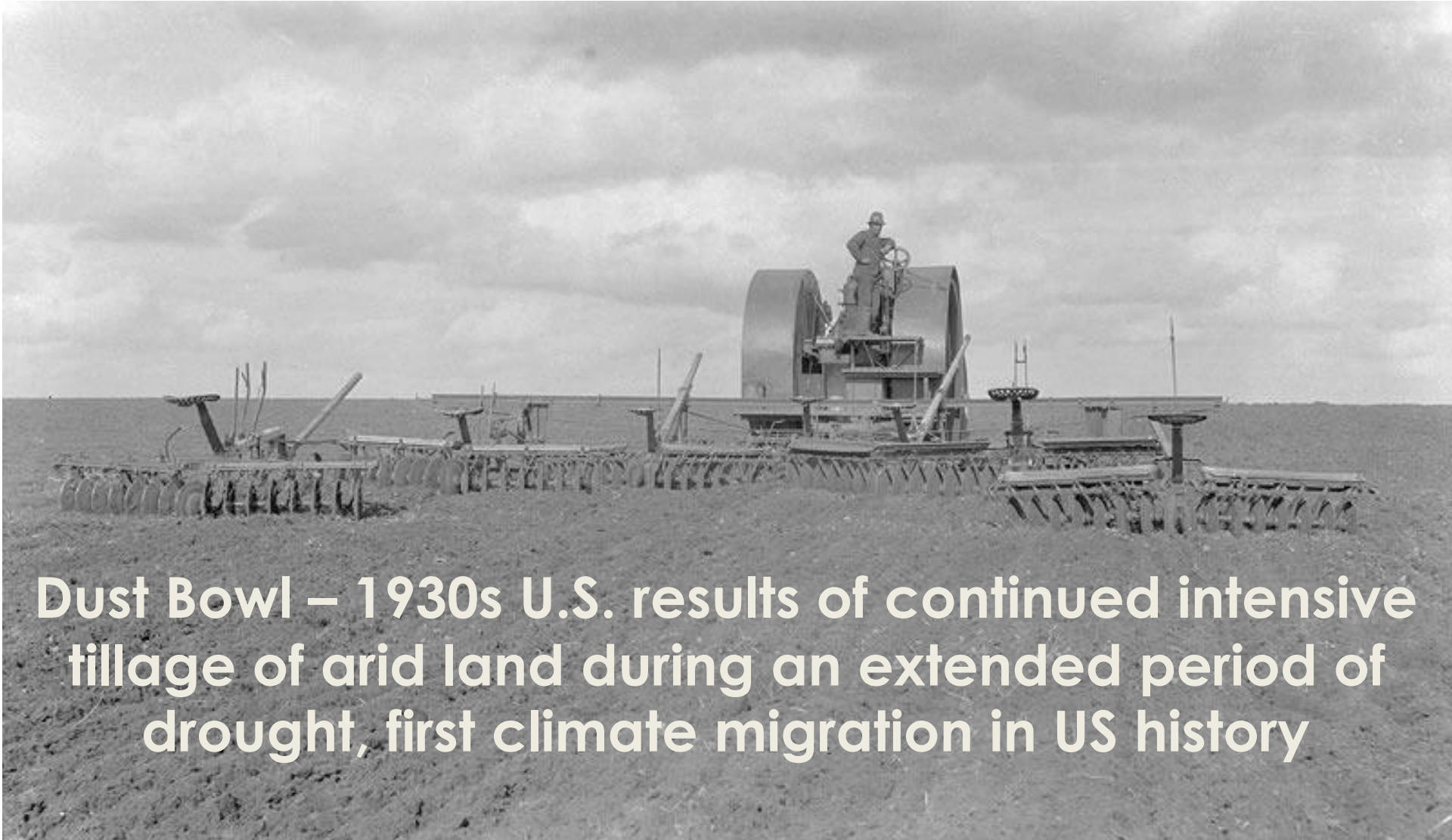
Compacted soil



Small reservoir for water & air



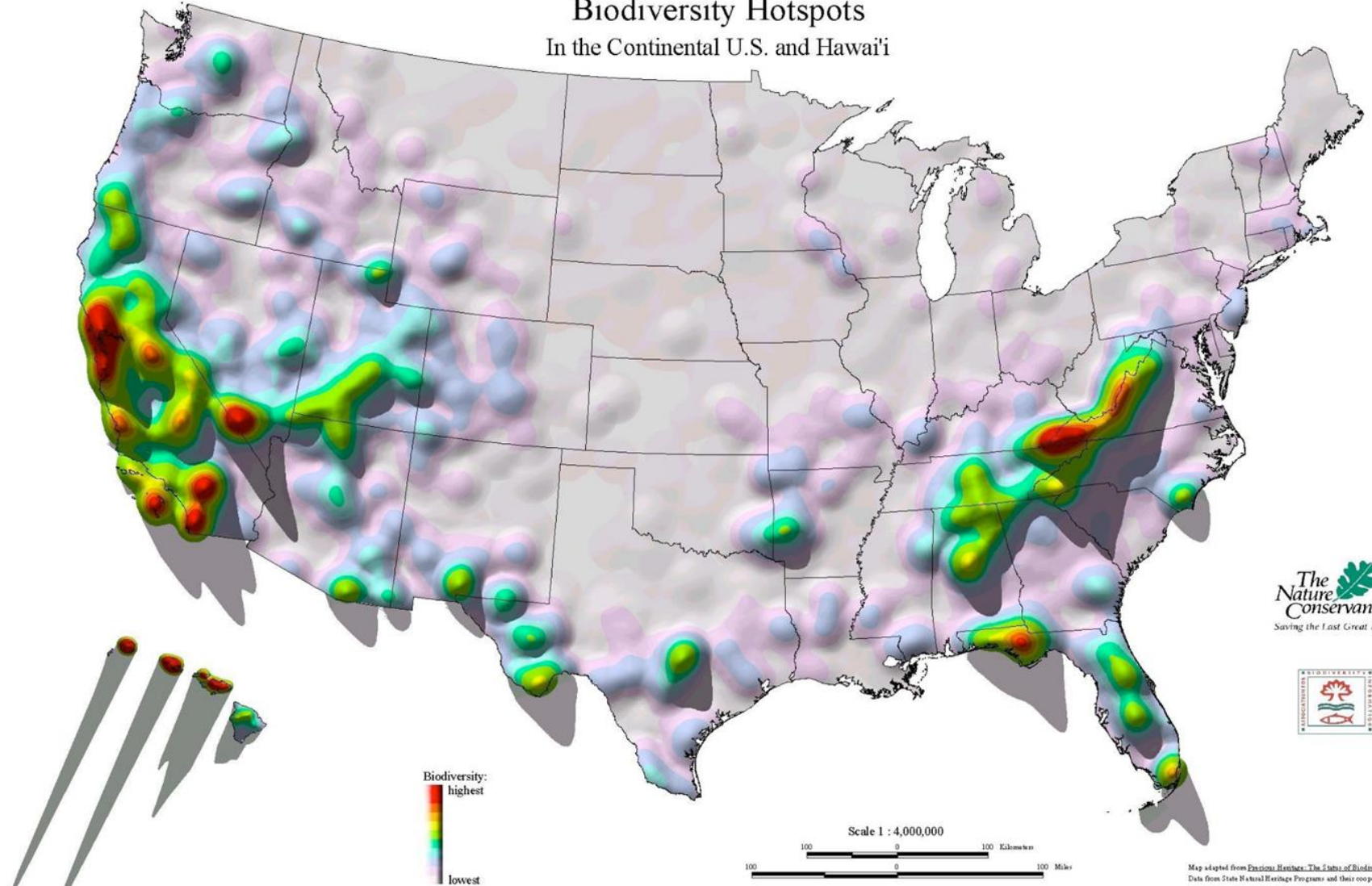




Dust Bowl – 1930s U.S. results of continued intensive tillage of arid land during an extended period of drought, first climate migration in US history

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.
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Choose native and non-invasive plants well suited to coastal conditions



Bob Peterson, CC BY-NC 2.0

Seashore mallow
(*Kosteletzkya virginica*)



Debbie Roos

Carolina anole searches for
prey on a seashore mallow

Can you identify the native tree?



Loblolly bay (*Gordonia lasianthus*)



Mimosa (*Albizia julibrissin*)

Can you identify the native bush?



Thorny olive (*Elaeagnus pungens*)



Yaupon holly (*Ilex vomitoria*)

Shrubs are underutilized – native berries have a high fat content at a crucial time of year (migration), however, many invasive shrubs like privet have sugary berries that aren't healthy for birds

Can you identify the native vine?



Japanese honeysuckle (*Lonicera japonica*) Coral honeysuckle (*Lonicera sempervirens*)

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

Three plant types: **Contributors, Non-contributors, Detractors**

Plant choice matters! → no functional food webs without right plants

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.

What can *you* do?



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



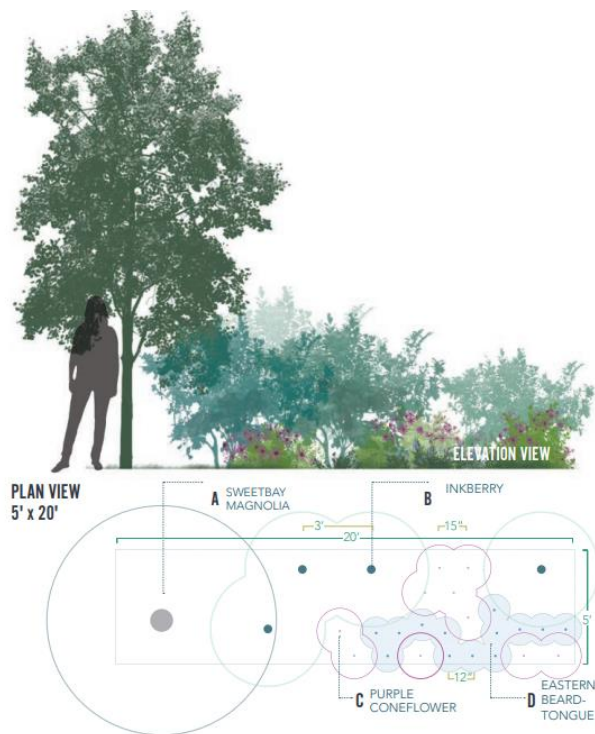
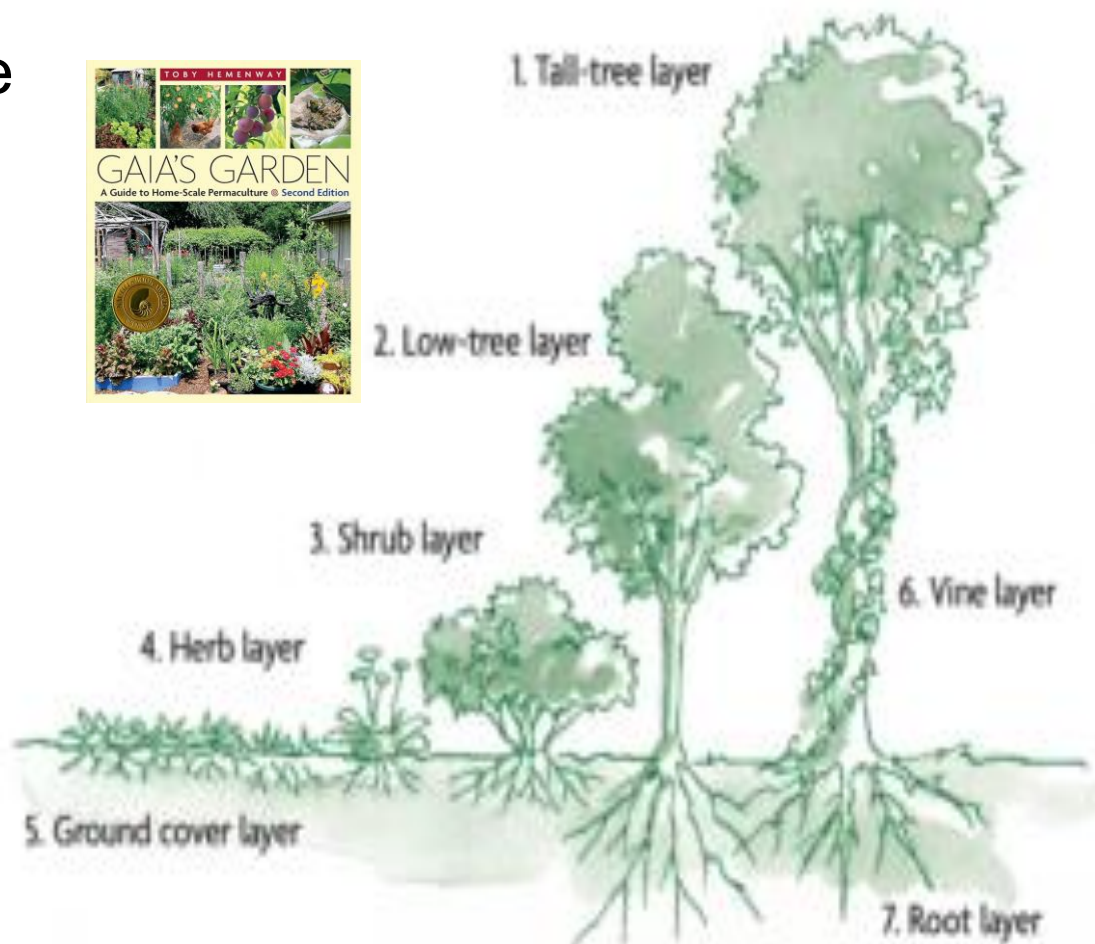
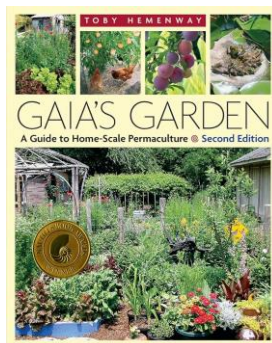
Right Plant, Right Place

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

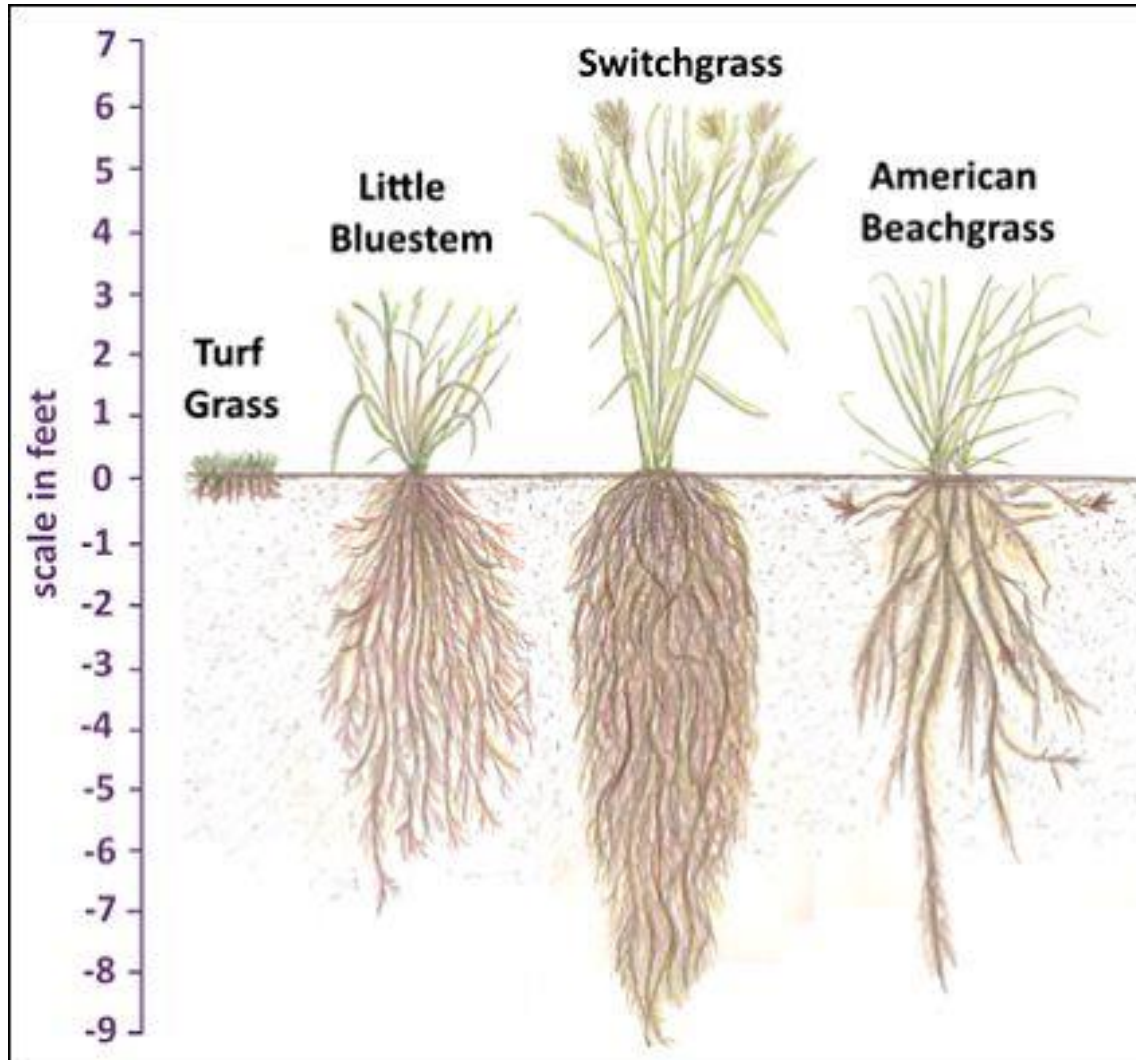


Diversity in Species and Structure

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



Turfgrass has very shallow roots



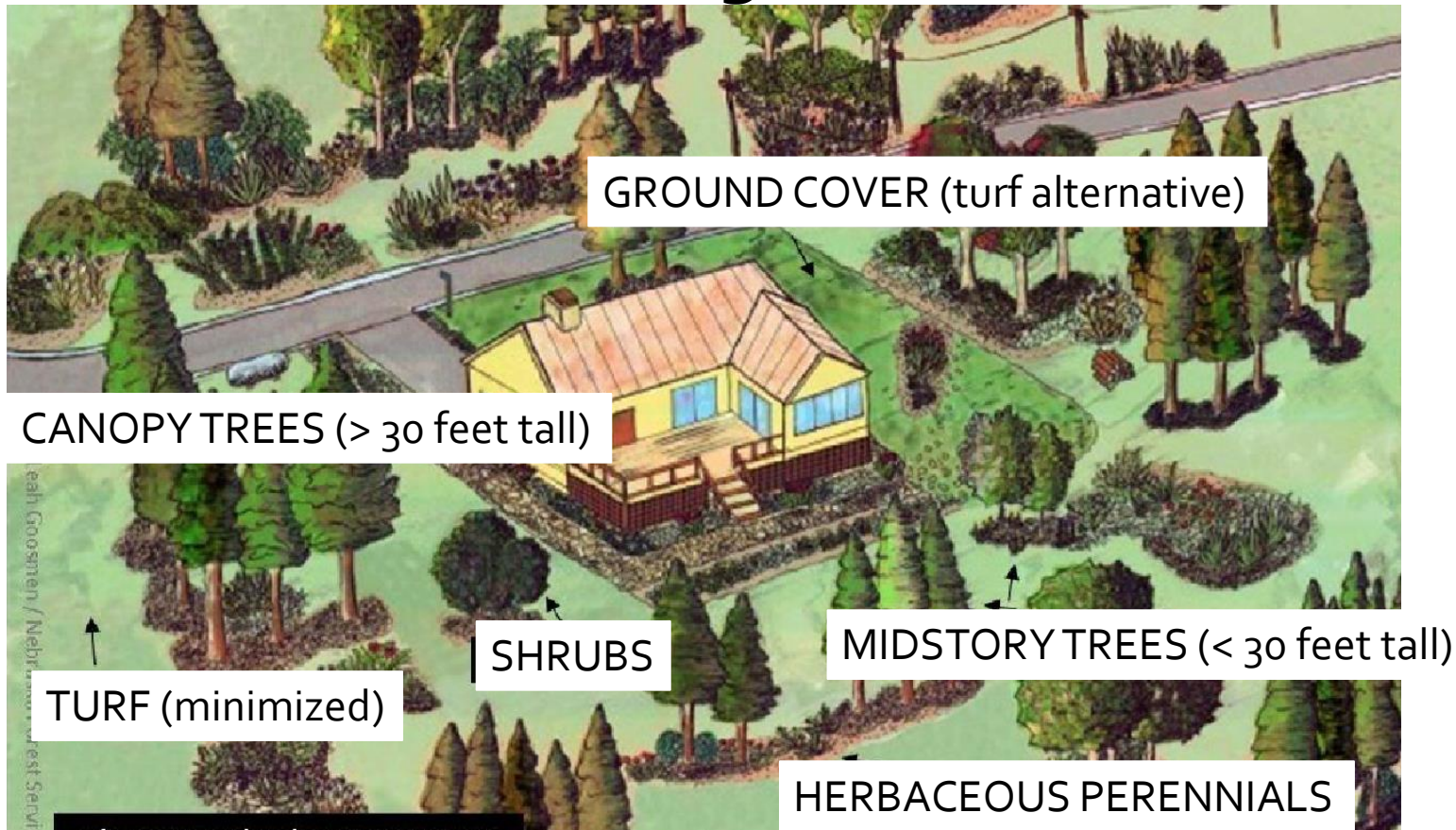


Native Plant Pond Buffer





Use a mix of plant types for health & ecological benefits



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*



Stormwater Runoff Pollutes



Runoff from Roof

Runoff from Gutters

Runoff from Street

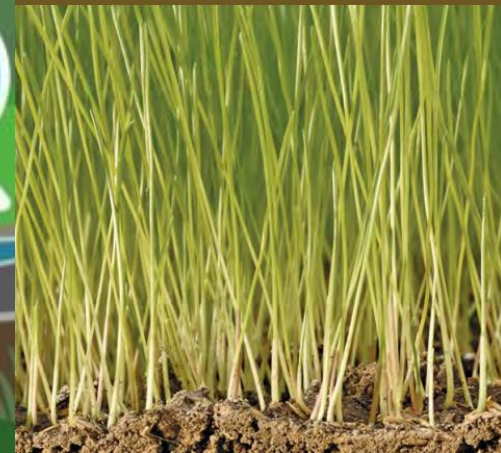
RUNOFF PICKS UP:

- 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 }



Manage storm water to improve water quality



Harvest and use rain water



Direct downspouts to gardens

Maintain stormwater ponds for water quality and beauty

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

Reduce turf and adopt lawn alternatives to create habitat for wildlife



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Wild ginger
(*Asarum canadense*)



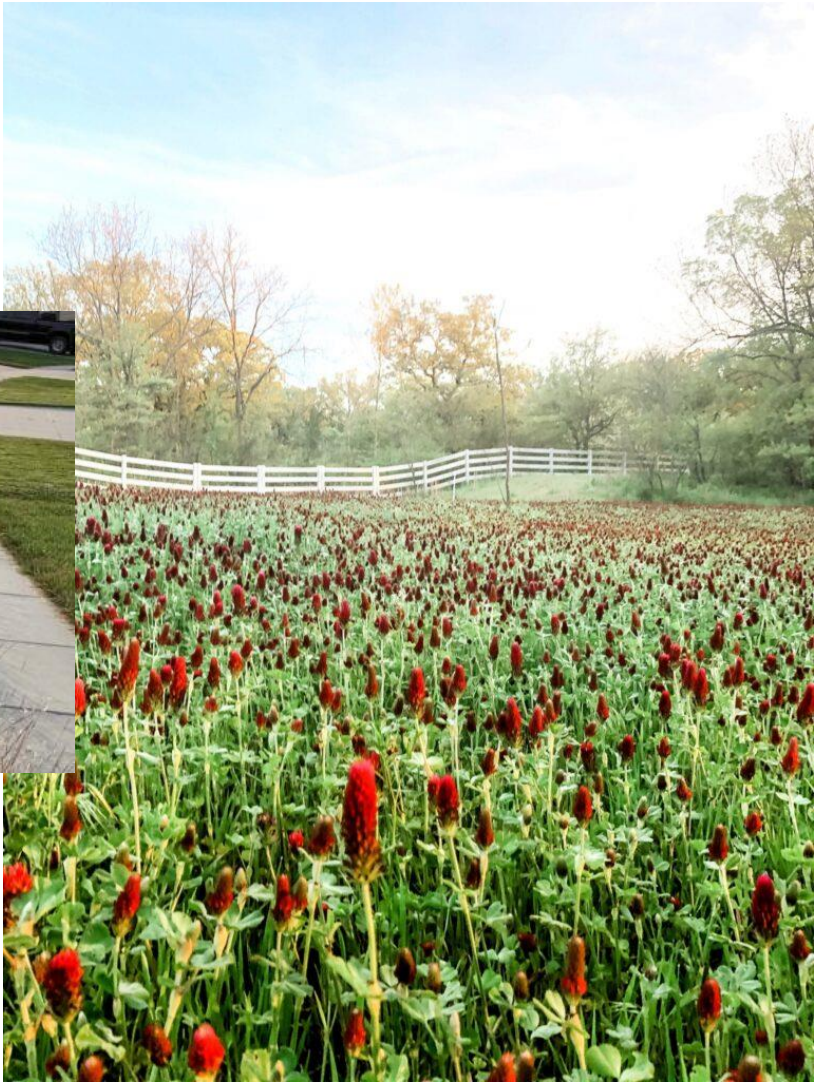
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Cinnamon fern
(*Osmunda cinnamomea*)



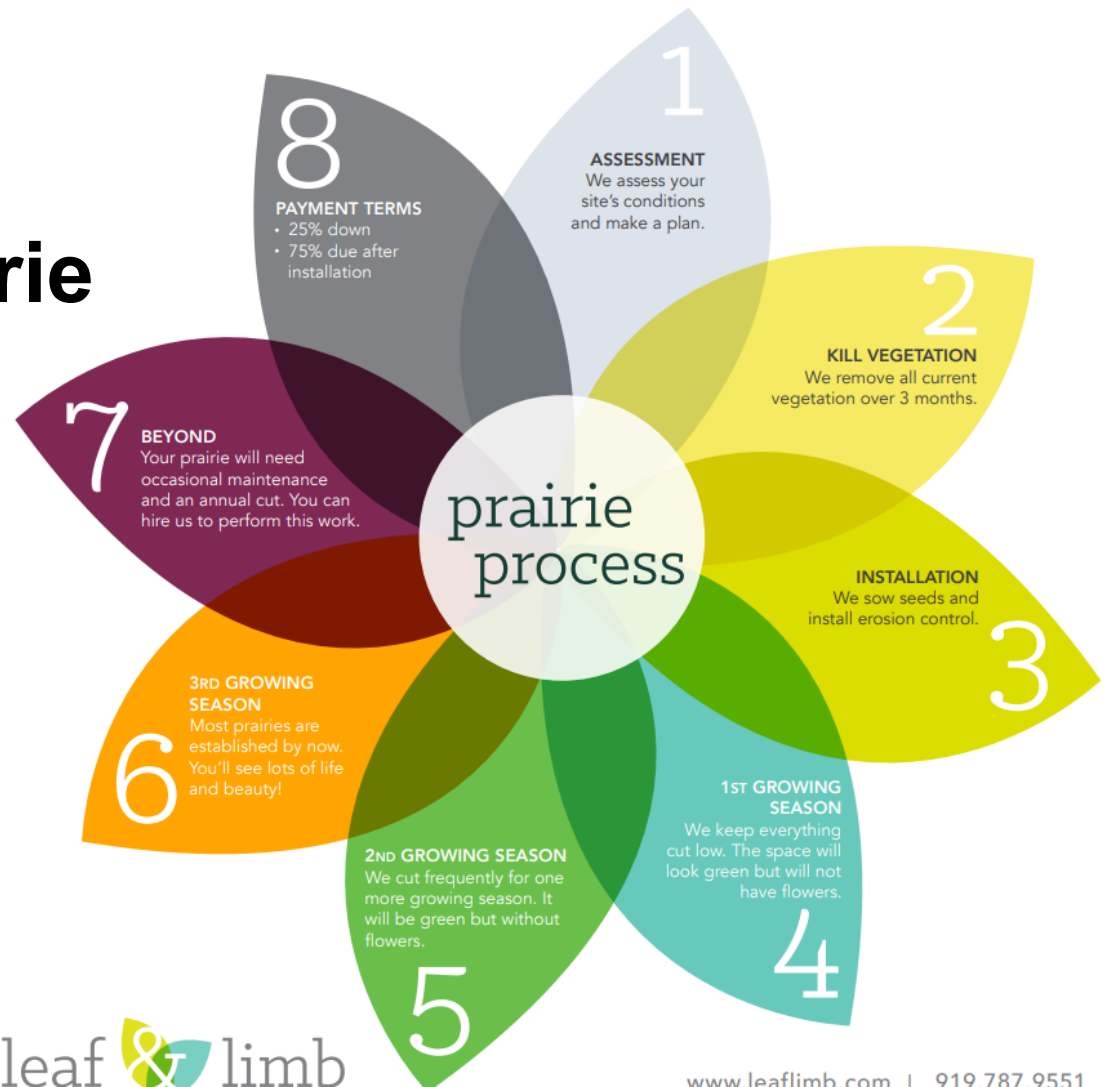
Ken Kennedy, CC BY-SA 2.0

Pink muhly grass
(*Muhlenbergia capillaris*)



Piedmont Prairie

- Leaf & Limb
Raleigh, NC
- Manage yards as meadows – less mowing, spraying; more resilient



**Water & fertilize
strategically to
maintain water
quantity & quality**



Jane Harrison

Incorporate Organic Matter to Build Healthy, Fertile Soil

- Adding OM improves most soil conditions
- Compost
- Cover Crops
- Mulches
- Biochar
- Crop Rotations
- Compost Teas



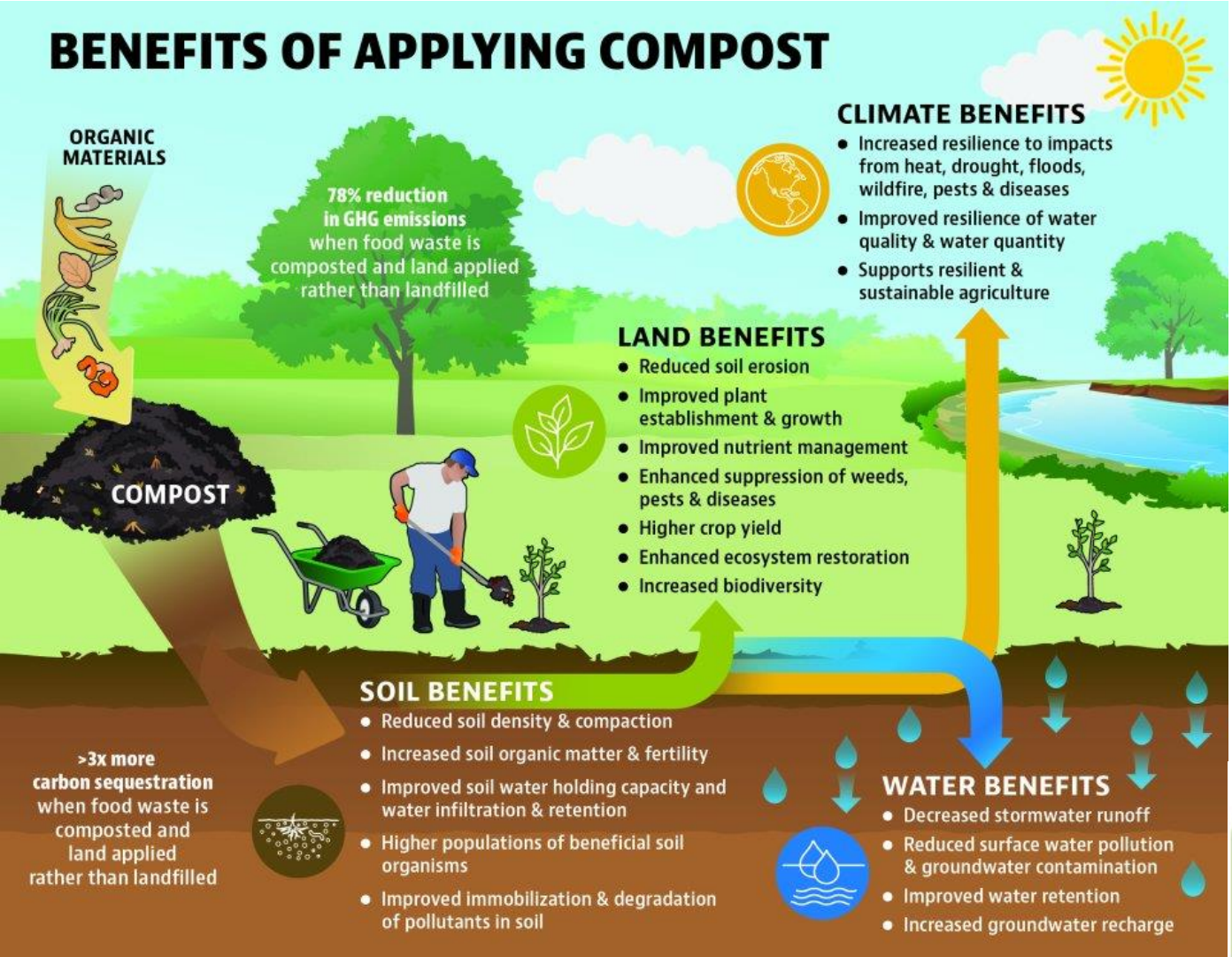
Michele Dorsey Walfred, Flickr CC BY 2.0

MChang666, Wikimedia CC BY SA 4.0

NRCS Factoid:

- Increasing soil organic matter (SOM) by 1% enhances water-holding capacity (WHC) by approximately 20,000 to 27,000 gallons per acre-foot.

BENEFITS OF APPLYING COMPOST



carolinacompost.com/

Chapter of the US Composting Council

Graphic source: EPA

**Slow it down, spread it out,
soak it in**



Compost Turf Topdress

- 1/8"-1/4" finely screened
- Timing of application
- [Topdresser](#)



Air Spade

- Restore the sponge
- Break up compacted soil without damaging roots, high-pressure air cannon
- Growing in healthy, living soil vs. surviving in hard, lifeless dirt
- Screwdriver test
- Air spade to incorporate organic matter (compost) into loosened dirt, apply arborist wood chip



Leave the Leaves

- Save labor, time, material – still tidy
- Keep carbon where it falls: leaf pile, leaf litter mulched areas, brush pile, dead wood
- Many species rely on fallen leaves for insulation (eggs, larvae, pupae, adults – bees, beetles, butterflies & moths, spiders, snails, worms, millipedes, mites → turtles, birds, amphibians); [life in the litter](#)
- Fireflies – larvae love leaves



LEAVES
ARE NOT
LITTER

THEY'RE FOOD AND SHELTER FOR
BUTTERFLIES, BEETLES, BEES, MOTHS, AND MORE.
TELL FRIENDS AND NEIGHBORS TO JUST

LEAVETHELEAVES



Save the Stems

- For overwintering pollinators
- Safe to cut stems only in first winter – trim back after first frost or before last frost (seeds for birds)
- 18"-24" stubble
- Stems unoccupied 1st winter, used as nesting sites in spring & summer
- Stems biodegrade

How to Create Habitat for Stem-Nesting Bees

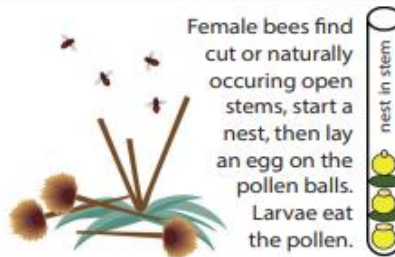


WINTER

Leave dead flower stalks intact over the winter

SPRING

Cut back dead flower stalks leaving stem stubble of varying height, 8 to 24 inches, to provide nest cavities.



Female bees find cut or naturally occurring open stems, start a nest, then lay an egg on the pollen balls. Larvae eat the pollen.

SUMMER

New growth of the perennial hides the stem stubble.



Bee larvae develop in cut dead stems during the growing season.

FALL



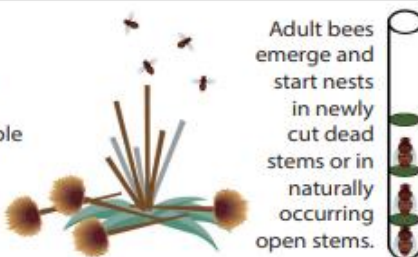
WINTER



Bees hibernate in stems during the winter

SPRING

Cut back dead flower stalks. Old stem stubble will naturally decompose.



Adult bees emerge and start nests in newly cut dead stems or in naturally occurring open stems.

Save the Stems

Many hollow or pithy plant stems and branches provide excellent places for cavity-nesting insects to call home. Small carpenter bees (*Ceratina* spp.) frequently carve out their nests in last year's dead raspberry (*Rubus* spp.) canes or wildflower stems, often only a few inches away from the blossoms that provide pollen to feed their young. Still tinier yellow-faced bees (*Hylaeus* spp.) use the hollow center of smaller stems, like bee balm (*Monarda* spp.) or roses (*Rosa* spp.), and larger leaf-cutter bees (*Megachile* spp.) prefer the larger stems of plants like native thistles (*Cirsium* spp.), cup plant (*Silphium perfoliatum*), or desert willow (*Chilopsis linearis*). The biggest stem-nesting bees in North America, large carpenter bees (*Xylocopa* spp.), sometimes use the pithy stems of large plants like yucca (*Yucca* spp.) and agave (*Agave* spp.) in regions where wood is uncommon or unavailable. Other common occupants of dead stems and twigs include cavity-nesting wasps, stem-boring moths, and even some spiders. In addition, some beneficial insects insert their eggs into the stems of wildflowers and grasses for safe keeping over the winter.

Learn more about how you can help provide nesting habitat for native bees at: xerces.org/pollinator-conservation/nesting-resources.

Print additional copies of this brochure at: xerces.org/publications/brochures/save-the-stems



The Xerces Society is an equal opportunity employer and provider. Xerces® is a trademark registered in the U.S. Patent and Trademark Office.

Acknowledgments

How to Create Habitat for Stem-Nesting Bees graphic provided by Colleen Satyshur, Elaine Evans, Heather Holm, and Sarah Foltz Jordan. Text above adapted from *Nesting & Overwintering Habitat for Pollinators & Other Beneficial Insects* by Sarah Foltz Jordan, Jennifer Hopwood, and Sara Morris of The Xerces Society for Invertebrate Conservation (available at: xerces.org/publications/fact-sheets/nesting-overwintering-habitat).

Provide Wildlife Structures & Water Features



- cats...

Reduce Nighttime Light Pollution

- Outdoor light major cause of insect decline (moths = majority of caterpillar diversity)
- Save on power bill
- Change bulbs to yellow/amber bug light (insects attracted to white & blue wavelengths, converting to yellow reduces interference); motion sensor, direct lighting downward





Create storm-ready,
resilient landscapes

Travis Klondike

Consider nature-enhancing alternatives when replacing deteriorating bulkheads



Install living shorelines to protect your property & wildlife



Select storm-ready trees to protect your home

Common Name	Storm Observations
Coastal American hornbeam (<i>Carpinus caroliniana</i>)	Hard, dense wood; limbs resist breakage; medium-high wind resistance
Flowering dogwood (<i>Cornus florida</i>)	Hard, dense wood; high wind resistance; limbs resist breakage; wind defoliates tree
Common persimmon (<i>Diospyros virginiana</i>)	Hard, dense wood; medium-high wind resistance
American holly (<i>Ilex opaca</i>)	High wind resistance
Yaupon (<i>Ilex vomitoria</i>)	High wind resistance; high flood tolerance

Source: Paul E. Hosier, Seacoast Plants of the Carolinas

Select storm-ready trees to protect your home

Common Name	Storm Observations
Southern magnolia (<i>Magnolia grandiflora</i>)	High wind resistance; wind defoliates tree; flood tolerant
Black gum (<i>Nyssa sylvatica</i>)	High flood tolerance; good wind resistance
Live oak (<i>Quercus virginiana</i>)	High wind resistance; wind defoliates tree; deep roots when in well-drained soil; somewhat low profile
Cabbage palmetto (<i>Sabal palmetto</i>)	High flood tolerance; high wind resistance
Bald Cypress (<i>Taxodium distichum</i>)	High wind resistance; widespread roots; few branches and leaves; flood-tolerant (fresh water only)

Source: Paul E. Hosier, Seacoast Plants of the Carolinas

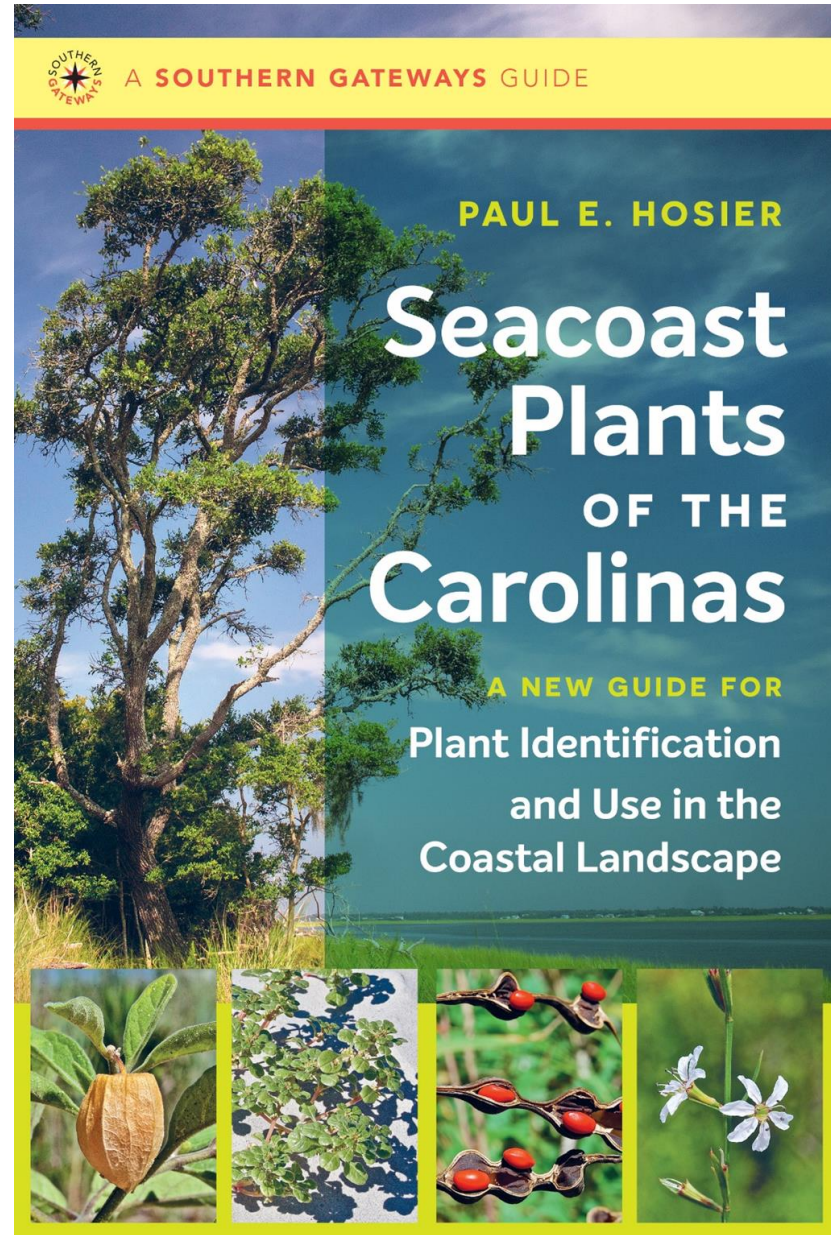
Select storm-ready trees

See Chapter 7 on Native Vegetation and Coastal Storms



Lucy Bradley

Live oak (*Quercus virginiana*)



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
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JanetandPhil
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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



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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



Jim Robbins
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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



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

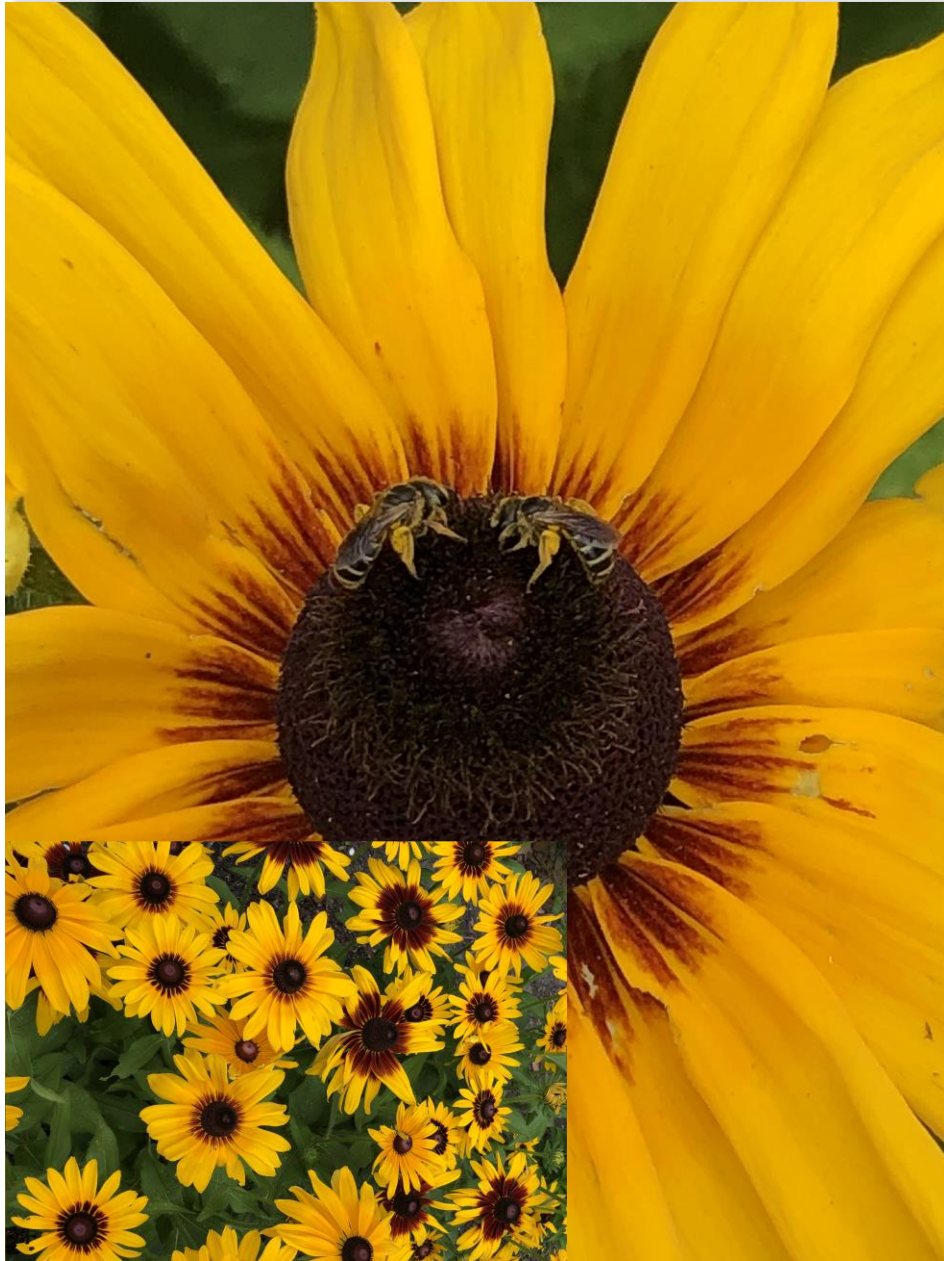
3-5' tall, full sun

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
- Container gardens with natives





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

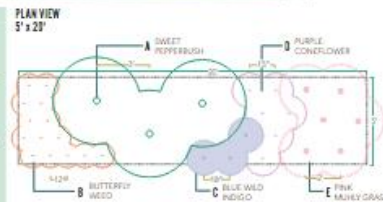


DESCRIPTION
The combination of flowering perennials, native ornamental grasses and shrubs add year-round interest with texture and color. This design also provides important foraging grounds and habitat for birds, bees and butterflies. Butterfly weed (or milkweed) is a host plant for monarch butterflies. 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 (*Yucca filamentosa*) is a good choice. Otherwise, opt for inkberry (*Ilex glabra*).

Perennial substitutes: eastern smooth beardtongue (*Penstemon laevis*), sand conopsis (*Conopsis lanceolata*) or more butterfly weed. Also, add a tall, (8-foot) semi-evergreen bush like zentobia (*Zenobia pulverulenta*) on the back of the border for year-round structure.

MAINTENANCE
Prune clematis 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.



ID	QTY	COMMON NAME	SCIENTIFIC NAME	PLANT TYPE	SIZE	J	F	A	M	J	A	S	O	N	D
A	3	Sweet pepperbush	<i>Chastula arifolia</i>	SHRUB	3' D.C.										
B	16	Butterfly weed	<i>Asclepias tuberosa</i>	PERENNIAL	12" D.C.										
C	3	Blue wild indigo	<i>Baptisia australis</i>	PERENNIAL	18" D.C.										
D	4	Purple coneflower	<i>Echinacea purpurea</i>	PERENNIAL	15" D.C.										
E	6	Mully grass	<i>Muhlenbergia capillaris</i>	GRASS	2' D.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 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.

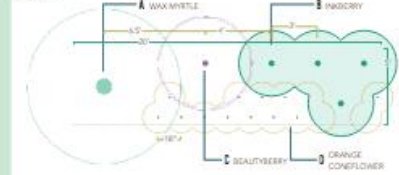
ALTERNATIVE
All of these plants should be readily available, if you need less height, dwarf varieties exist for most of the shrubs.

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 mima*) or deciduous coniberry (*Symphoricarpos orbiculata*).

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.



PLAN VIEW 5' x 20'



PLANT SELECTION

ID	QTY	COMMON NAME	SCIENTIFIC NAME	PLANT TYPE	SIZE	J	F	A	M	J	A	S	O	N	D
A	1	Wax myrtle	<i>Mycia carolin</i>	SHRUB	4.5' D.C.										
B	4	Inkberry	<i>Ilex glabra</i>	SHRUB	4.5' D.C.										
C	1	American inkberry	<i>Callicarpa americana</i>	SHRUB	2' D.C.										
D	15	Orange coneflower	<i>Rudbeckia hirta</i>	PERENNIAL	18" D.C.										

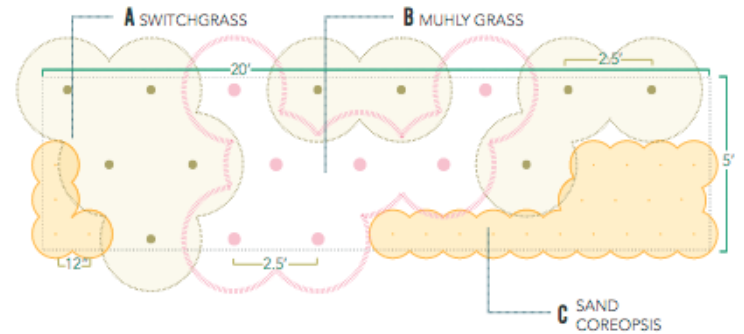
NEW! Containers
Greening Your Space
Creating Eco-Friendly Container Gardens
for Coastal North Carolina

From the COASTAL LANDSCAPES INITIATIVE

FILTER STRIP

FOR SUNNY AREAS WITH DRY TO MOIST SOIL

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



go.ncsu.edu/ModelLandscapes

Notable Coastal North Carolina Landscaping

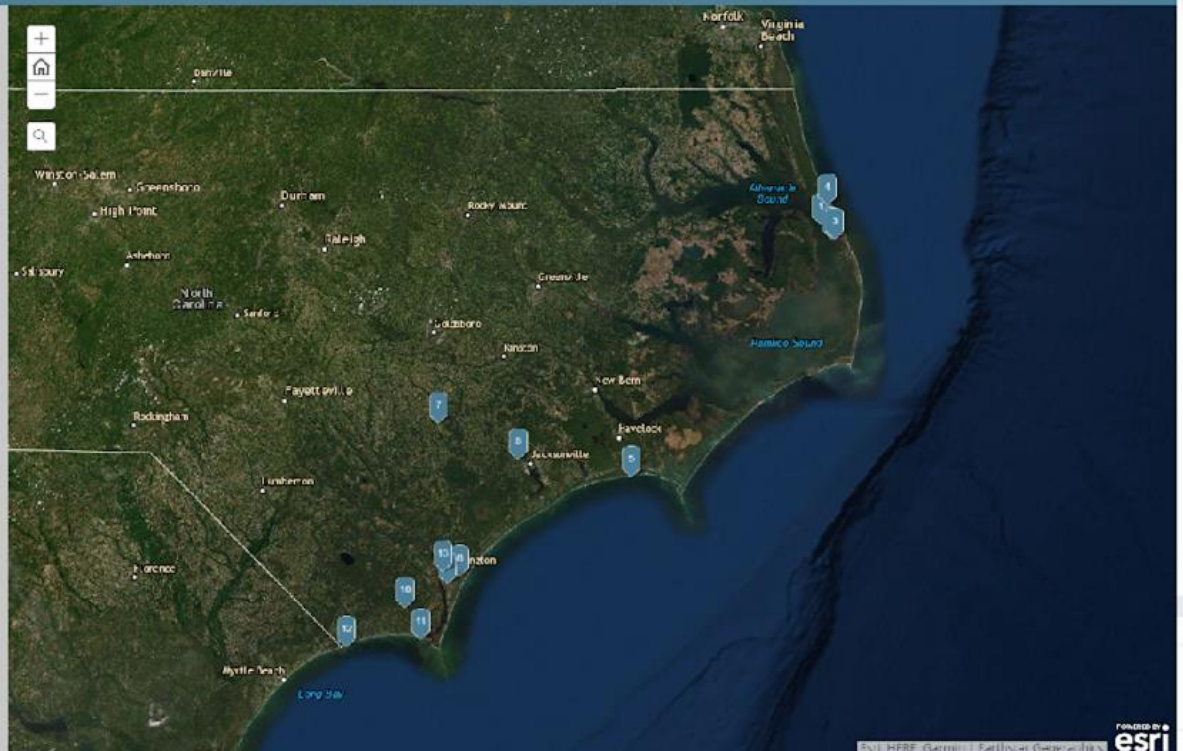
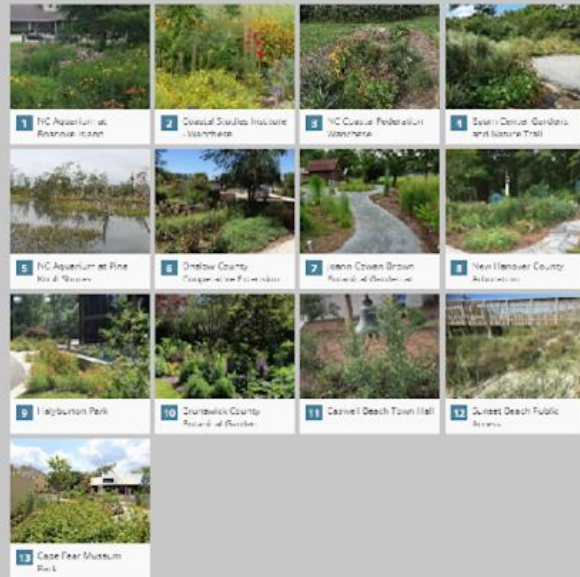
This map identifies publicly accessible sites with attractive and beneficial landscaping features, primarily using native plants, that can be replicated on residential and commercial or government properties. Sites have been vetted through partners of the Coastal Landscapes Initiative. To suggest additional sites for this map, please complete the online form found here: go.ncsu.edu/suggestCLsite or contact Ulona Putnam at 919-959-7469 and gputnam@ncsu.edu. To learn more about the initiative visit go.ncsu.edu/coastallandscapes.

Coastal Landscapes Initiative



Native Plant / Pollinator / Rain Gardens

Commercial / Public Space / Stormwater Pond Designs



NC Extension Gardener Plant Toolbox plants.ces.ncsu.edu

NC STATE EXTENSION

North Carolina
Extension Gardener
Plant Toolbox

Home Find a Plant Identify a Plant Design Gallery Help Give Now Contact

Search Search

NC Region: Coastal Plant Type: Bulb Plant Type: Native Plant

17 plants by Scientific Common Name

Display: [Grid Icon] [List Icon]

Cultural Conditions

- Light
- Soil Texture
- Soil pH
- Soil Drainage
- Available Space To Plant
- NC Region
 - Coastal 17
 - Mountains 13
 - Piedmont 15
- USDA Plant Hardiness Zone

Landscape

- Landscape Location
- Landscape Theme
- Design Feature
- Attracts
- Resistance To Challenges
- Problems to exclude

Whole Plant Traits

Plant Type

- Bulb 17
- Cool Season Vegetable 1
- Edible 1
- Ground Cover 1
- Herb 2
- Herbaceous Perennial 5
- Native Plant 17
- Perennial 12
- Poisonous 4
- Weed 1
- Wildflower 9

Whole Plant Leaf Characteristics

- Habit/Form
- Growth Rate
- Maintenance

Plant Grid:

- Allium canadense**
Meadow Garlic, Wild Garlic, Wild Onion
- Allium cuthbertii**
Cuthbert's Onion, Striped Garlic
- Amianthium muscitoxicum**
Crow Poison, Fly Poison, Stagger Grass
- Crinum americanum var. americanum**
Seven-sisters, String-illy, Swamp-illy
- Hymenocallis occidentalis var. occidentalis**
Hammock Spiderlily, Woodland Spiderlily
- Iris cristata**
Crested Iris, Dwarf Crested Iris, Iris
- Iris tridentata**
Savannah Iris
- Iris verna**
Dwarf Iris, Dwarf Violet Iris, Vernal Iris
- Liatris**
Blazing Stars, Gay Feather
- Liatris spicata**
Blazing Star, Blazing Stars, Dense Blazing Star, Dense Button Snakeroot, Gayfeather, Marsh Blazing Star, Sessile-headed Blazing Star, Snakeroot, Spike Gayfeather
- Liatris spicata var. resinosa**
Bog Blazing Star, Dense Blazing Star, Dense Button Snakeroot
- Lilium superbum**
Turk's Cap Lily, Turk's-cap Lily
- Sisyrinchium atlanticum**
Blicknell Blue-eyed Grass, Eastern Blue Eyed Grass
- Sisyrinchium mucronatum**
Needle-pointed Blue-eyed Grass, Needle-tip Blue-eyed Grass, Slender Blue-eyed Grass
- Tipularia discolor**
Crane-fly Orchid, Crippled Crane-fly
- Zephyranthes atamasco**
Atamasca Lily, Common Atamasco-illy, Fairy Lily, Rain Lily, Zephyr Lily
- Zephyranthes drummondii**
Evening Rain Lily, Evening Star Rain Lily, Giant rain lily, Hill Country Rain Lily, Prairie Lily, Prairie Lily, Rain Lily

- Find a Plant
- Identify a Plant
- Gallery of Garden Designs
- Filter to generate lists of plants to fill niche
- Photographs
- Botanical features
- Life cycle
- Seasonal interest
- Native alternatives
- Better adapted options

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/>

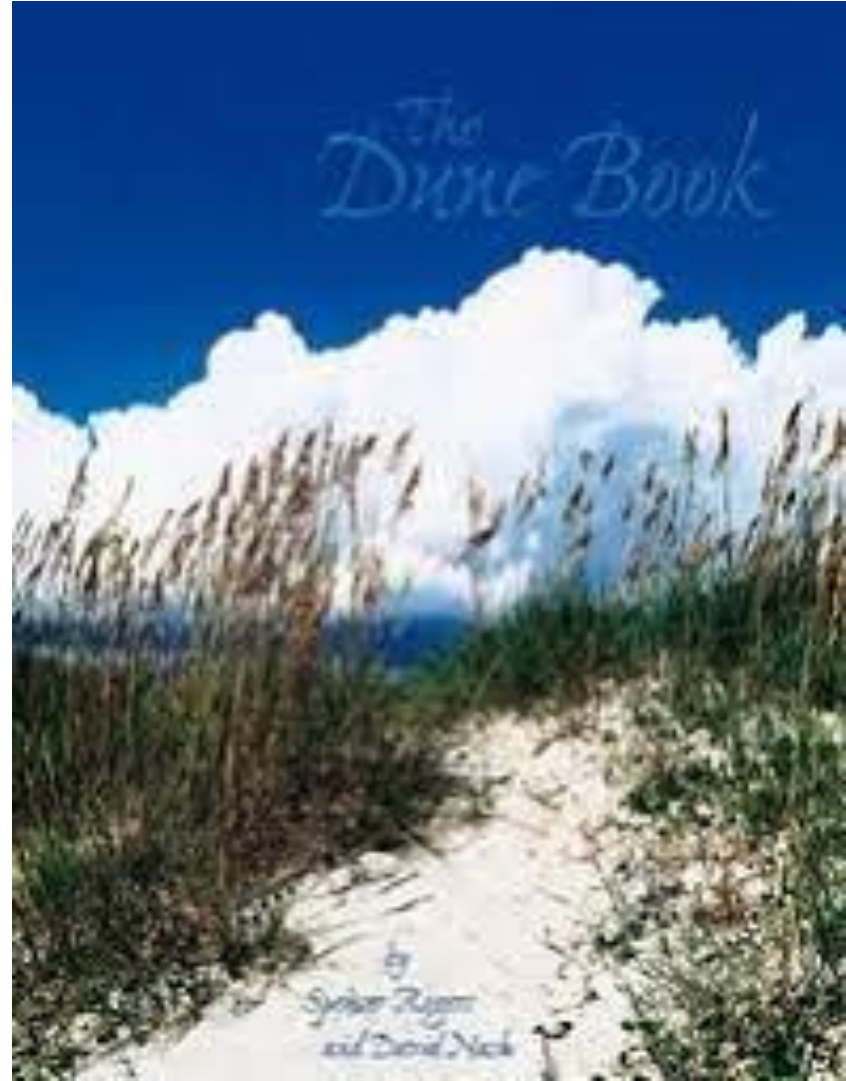
Native Plants for Coastal North Carolina Landscapes

"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
 - <https://brunswick.ces.ncsu.edu> – 25 Referendum Dr NE, Building N in Bolivia, Brunswick County, Monday through Friday, 8:30am-5pm
 - mecollog@ncsu.edu
 - 910-253-2584
- Supervisor – New Hanover Soil & Water Conservation District
 - <https://soilwater.nhcgov.com/>

