

SALT TOLERANT PLANTS

Recommended for Pender County Landscapes

Pender County Cooperative Extension

Urban Horticulture Leaflet 14



Coastal Challenges

Plants growing at the beach are subjected to environmental conditions much different than those planted further inland. Factors such as blowing sand, poor soils, high temperatures, and excessive drainage all influence how well plants perform in coastal landscapes, though the most significant effect on growth is salt spray. Most plants will not tolerate salt accumulating on their foliage, making plant selection for beachfront landscapes particularly challenging.

Salt Spray

Salt spray is created when waves break on the beach, throwing tiny droplets of salty water into the air. On-shore breezes blow this salt laden air landward where it comes in contact with plant foliage. The amount of salt spray plants receive varies depending on their proximity to the beachfront, creating different vegetation zones as one gets further away from the beachfront. The most salt-tolerant species surviving in the frontal dune area. As distance away from the ocean increases, the level of salt spray decreases, allowing plants with less salt tolerance to survive.

Natural Protection

The impact of salt spray on plants can be lessened by physically blocking salt laden winds. This occurs naturally in the maritime forest, where beachfront plants protect landward species by creating a layer of foliage that blocks salt spray. It is easy to see this effect on the ocean side of maritime forest plants, which are “sheared” by salt spray, causing them to grow at a slant away from the oceanfront. Removal of this “shear zone” during construction opens holes that allow salt spray to blow through, damaging plants that were previously protected.

Manmade Protection

Buildings, fences and other structures that block blowing salt spray also allow plants with less salt tolerance to grow landward of a structure. Homes near the ocean will have two distinct micro environments based on salt spray. The side of the house facing the ocean will require landscape plants with high salt tolerance. The landscape area on the landward side that is protected from salt laden winds may be planted with species having little or no salt tolerance depending upon the degree they are protected from blowing winds. Frequent overhead irrigation rinses salt accumulations off plant foliage, reducing the impact to less salt-tolerant species.

Landscaping at the Beach

The following plant lists have been compiled to assist homeowners and landscape professionals to choose plants appropriately for coastal landscapes. The lists are divided by plant type (trees, shrubs, vines, groundcovers, etc.) and three levels of salt tolerance (high, moderate, slight) and have been compiled from the references listed on the last page as well as personal observation.

Properties within at least one-eighth of a mile of the oceanfront should be landscaped with plants known to have some level of salt tolerance. Properties along or near brackish water estuaries should also be landscaped with plants possessing some degree of salt tolerance, though not necessarily as high as those on the oceanfront. During hurricanes and coastal storms, salt laden winds extend further inland than normal. This causes damage to plants that are not salt tolerant, though they generally recover following the storm event.

Other factors to take into consideration when choosing plants for coastal landscapes include soil pH, which can be determined by sending a soil sample to the NC Department of Agriculture (boxes, forms and instructions are available from your local Cooperative Extension office), sun and wind exposure, and soil type. Incorporating composted organic matter into the soil will greatly increase the soil's ability to hold moisture and improve plant growth. Applying two to four inches of mulch will also help plant growth by reducing soil temperature and conserving moisture. Organic mulches such as pine straw or shredded bark mulches decompose over time, adding to the organic matter content of the soil.

Dune Preservation and Vegetation Restoration:

Preservation of the natural dune system and its native vegetation is critical to protecting both natural and manmade coastal landscapes. More information about the natural dune system and restoring its vegetation is available online as follows:

Restoration and Management of Coastal Dune Vegetation, from the NCSU Soil Science Department:
http://www.soil.ncsu.edu/lockers/Broome_S/ram.html

The Dune Book, by David Nash and Spencer Rogers, available from NC Sea Grant at:
http://www.ncseagrant.org/files/dune_booklet.pdf

Table of Contents:

Key	3
Small Trees	4-5
Large Trees	5-6
Shrubs	6-9
Vines	9
Palms	9
Ornamental Grasses	10
Perennials	10-12
Turf Grasses	12
Annuals	13
Groundcovers	14
References	15

Highly Salt Tolerant

Plants tolerant of the direct salt spray such as that received along dunes and immediately adjacent to the oceanfront.

Moderately Salt Tolerant

Plants tolerant of moderate levels of salt spray, such as that received in landscapes adjacent to the beach front, but which are sheltered by other plants, structures or natural dunes.

Slightly Salt Tolerant

Plants with the lowest level of tolerance to salt spray. These plants should be used only in areas receiving some protection from direct salt spray, either from a building or other vegetation. In areas that are completely sheltered, plants with no known salt tolerance can be grown.

Underlined Plants

Plants that are extremely tolerant of growing in sandy, poor soils and display extreme drought tolerance once established.

*** Native**

Plants that are native to the coastal plains of the southeast USA, ranging from New Jersey south along the Atlantic Seaboard through Florida and along the Gulf Coast to East Texas.

‘Cultivar Names’

Cultivar names are written in single quotes. Cultivars, or varieties, are plants that have been selected because they display desirable characteristics such as larger flowers, different color foliage, more compact growth, etc. Cultivars are propagated vegetatively (cuttings, division, tissue culture) so they are genetically identical to each other.

Evergreen/Deciduous

E or D refers to whether a plant is evergreen (retains its foliage all year) or deciduous (sheds its foliage each fall and grows new leaves in spring).

Exposure

Refers to the amount of sunlight a site receives as follows:

- **Full sun** indicates a site that receives at least 8hrs of direct sun each day.
- **Light Shade** indicates a site that is shaded less than half of the day by a light high shade such as that cast by pines.
- **Part Shade** indicates a site that is shaded for half the day by a dense shade like that cast by buildings or shade trees.
- **Full Shade** indicates a site that is in shade all day.

Soil

Refers to soil condition at the site as follows:

- **Wet** indicates a site that stays moist most of the time and receives periodic flooding.
- **Moist** indicates a site that is moist most of the time with brief (less than 12hrs) periods of standing water.
- **Well Drained** indicates a site where water drains from the surface and rarely stands.
- **Xeric** indicates a site that is extremely dry and sandy with very little ability to hold water.

Small Trees—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
<u>Yaupon*</u>	<i>Ilex vomitoria</i>	15-20 x 10-15	E	Moist to Xeric	Sun to Light Shade
<u>Waxmyrtle*</u>	<i>Myrica cerifera</i>	10-20 x 10-20	E	Moist to Xeric	Sun to Light Shade
<u>Devilwood*</u>	<i>Osmanthus americanus</i>	15-25 x 10-20	E	Moist to Well Drained	Sun to Light Shade
<u>Redbay*</u>	<i>Persea borbonia</i>	20-30 x 15-25	E	Moist to Xeric	Sun to Light Shade
<u>Japanese Black Pine</u>	<i>Pinus thunbergii</i>	20-40 x 15-25	E	Well Drained to Xeric	Sun
<u>Chinese Podocarpus</u>	<i>Podocarpus macrophyllus</i> 'Maki'	20-30 x 10-15	E	Well Drained	Sun to Part Shade
<u>Sand Live Oak*</u>	<i>Quercus geminata</i>	20-30 x 30-40	E	Well Drained to Xeric	Sun

Small Trees—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
<u>Trident Maple</u>	<i>Acer buergerianum</i>	20-25 x 10-15	D	Well Drained	Sun
<u>Arizona Cypress</u>	<i>Cupressus arizonica</i>	10-30 x 8-20	E	Well Drained	Sun
<u>Italian Cypress</u>	<i>Cupressus sempervirens</i>	20-30 x 4-8	E	Well Drained	Sun
<u>Loquat</u>	<i>Eriobotrya japonica</i>	15-20 x 15-20	E	Well Drained	Sun to Light Shade
<u>Eucalyptus</u>	<i>Eucalyptus cinerea</i>	15-30 x 10-20	E	Well Drained	Sun
<u>Dahoon Holly*</u>	<i>Ilex cassine</i>	20-30 x 8-15	E	Moist to Well Drained	Sun
<u>Myrtle Leaf Holly*</u>	<i>Ilex cassine</i> variety <i>myrtifolia</i>	10-20 x 8-12	E	Well Drained	Sun
<u>American Holly*</u>	<i>Ilex opaca</i>	20-30 x 15-20	E	Moist to Well Drained	Sun to Part Shade
<u>Foster's Holly*</u>	<i>Ilex x attenuata</i> 'Fosters'	20-30 x 10-15	E	Moist to Well Drained	Sun to Part Shade
<u>'Nellie Stevens' Holly</u>	<i>Ilex x 'Nellie R. Stevens'</i>	15-25 x 10-15	E	Moist to Well Drained	Sun to Part Shade
<u>Hollywood Juniper</u>	<i>Juniperus chinensis</i> 'Kaizuka' also known as 'Torulosa'	15-25 x 8-15	E	Well Drained to Xeric	Sun
<u>Crape Myrtle</u>	<i>Lagerstroemia</i> hybrids – many varieties available	15-30 x 10-25 Depending on Variety	D	Well Drained	Sun
<u>'Little Gem' Magnolia*</u>	<i>Magnolia grandiflora</i> 'Little Gem'	20-25 x 10-15	E	Moist to Well Drained	Sun to Part Shade
<u>Sweet Bay*</u>	<i>Magnolia virginiana</i>	20-30 x 10-20	Semi-E	Moist to Well Drained	Sun to Part Shade

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Sourwood*	<i>Oxydendrum arboreum</i>	25-30 x 15-20	D	Well Drained	Sun to Part Shade
<u>Carolina Cherrylaurel*</u>	<i>Prunus caroliniana</i>	20-30 x 15-20	E	Well Drained to Xeric	Sun to Light Shade
Japanese Snowbell	<i>Styrax japonicus</i>	20-30 x 20-30	D	Well Drained	Sun to Part Shade
<u>Tamarix</u>	<i>Tamarix ramosissima</i>	10-20 x 8-12	D	Well Drained to Xeric	Sun
<u>Chastetree</u>	<i>Vitex agnus-castus</i>	15-20 x 10-15	D	Well Drained	Sun

LARGE TREES, Over 30'

Large Trees—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
<u>Thornless Honeylocust*</u>	<i>Gleditsia triacanthos</i>	40-60 x 20-40	D	Well Drained	Sun
<u>Eastern Red Cedar*</u>	<i>Juniperus virginiana</i>	30-50 x 10-20	E	Well Drained to Xeric	Sun
Southern Magnolia*	<i>Magnolia grandiflora</i>	60-80 x 30-50	E	Well Drained	Sun to Part Shade
<u>Willow Oak*</u>	<i>Quercus phellos</i>	80-100 x 40-50	D	Moist to Well Drained	Sun
<u>Live Oak*</u>	<i>Quercus virginiana</i>	60-80 x 60-80	E	Well Drained to Xeric	Sun

Large Trees - *Moderately Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
River Birch*	<i>Betula nigra</i>	40-70 x 40-60	D	Moist to Well Drained	Sun
Atlas Cedar	<i>Cedrus atlantica</i>	40-60 x 30-40	E	Well Drained	Sun
Deodar Cedar	<i>Cedrus deodora</i>	50-70 x 50-70	E	Well Drained	Sun
<u>Sugarberry*</u>	<i>Celtis laevigata</i>	60-80 x 50-70	D	Moist to Well Drained	Sun
<u>Ginkgo, Maidenhair Tree</u>	<i>Ginkgo biloba</i>	50-70 x 30-40	D	Well Drained	Sun
Black Gum*	<i>Nyssa sylvatica</i>	30-50 x 20-30	D	Moist to Well Drained	Sun
Laurel Oak*	<i>Quercus hemisphaerica</i>	40-60 x 30-40	E	Moist to Well Drained	Sun
<u>Water Oak*</u>	<i>Quercus nigra</i>	50-80 x 30-60	D	Moist to Well Drained	Sun

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Shumard Oak*	<i>Quercus shumardii</i>	40-60 x 40-60	D	Moist to Well Drained	Sun
Black Locust*	<i>Robinia pseudoacacia</i>	30-50 x 20-35	D	Moist to Xeric	Sun
Lacebark Elm	<i>Ulmus parvifolia</i>	40-50 x 30-40	D	Well Drained	Sun

Large Trees—*Slightly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Japanese Cedar	<i>Cryptomeria japonica</i>	40-60 x 20-30	E	Moist to Well Drained	Sun
American Beech*	<i>Fagus grandifolia</i>	50-70 x 40-60	D	Well Drained	Sun
Baldcypress*	<i>Taxodium distichum</i>	50-70 x 20-30	D	Wet to Well Drained	Sun

SHRUBS

Shrubs—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Evergreen/Deciduous	Soil	Exposure
Century Plant	<i>Agave americana</i>	5-7 x 8-12	E	Well Drained to Xeric	Sun
Elaeagnus	<i>Elaeagnus pungens</i> <i>Elaeagnus x ebbingii</i>	10-15 x 10-15	E	Well Drained to Xeric	Sun to Part Shade
Dwarf Yaupon Holly*	<i>Ilex vomitoria</i> ‘Nana’, ‘Bordeaux’, ‘Schilling’s’	3-4 x 4-5	E	Well Drained to Xeric	Sun to Part Shade
Oleander	<i>Nerium oleander</i>	6-10 x 4-8	E	Well Drained to Xeric	Sun
New Zealand Flax	<i>Phormium tenax</i>	4-6 x 4-6	E	Well Drained	Sun
Pittosporum	<i>Pittosporum tobira</i>	6-8 x 6-8	E	Well Drained to Xeric	Sun to Part Shade
Dwarf Pittosporum	<i>Pittosporum tobira</i> ‘Wheeler’s Dwarf’, ‘Mojo’, ‘Cream de Mint’	3-4 x 3-5	E	Well Drained to Xeric	Sun to Part Shade
‘Majestic Beauty’ Indian Hawthorn	<i>Rhaphiolepis umbellata</i> ‘Majestic Beauty’	8-10 x 8-10	E	Well Drained	Sun
Rugosa Rose	<i>Rosa rugosa</i>	3-5 x 4-6	D	Well Drained	Sun
Rosemary	<i>Rosmarinus officinalis</i>	3-6 x 3-6	E	Well Drained to Xeric	Sun
Butcher’s Broom	<i>Ruscus aculeatus</i>	2-3 x 2-3	E	Well Drained	Part Shade to Shade
Sandwanka Viburnum	<i>Viburnum suspensum</i>	4-8 x 4-8	E	Well Drained to Xeric	Sun
Yucca*	<i>Yucca gloriosa</i> <i>Yucca aloifolia</i>	6-8 x 4-8	E	Well Drained to Xeric	Sun

Shrubs—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Evergreen/ Deciduous	Soil	Exposure
Japanese Aucuba	<i>Aucuba japonica</i>	5-8 x 4-6	E	Well Drained	Part to Full Shade
Dwarf Aucuba	<i>Aucuba japonica</i> 'Nana'	3-4 x 2-3	E	Well Drained	Part to Full Shade
Hedge Bamboo	<i>Bambusa multiplex</i>	15-20 x 6-10	E	Well Drained	Light to Part Shade
Wintergreen Barberry	<i>Berberis julianae</i>	6-8 x 6-8	E	Well Drained	Sun
<u>Bottlebrush</u>	<i>Callistemon rigidus</i>	5-6 x 5-6	E	Well Drained	Sun
Flowering Quince	<i>Chaenomeles speciosa</i>	6-10 x 6-10	D	Well Drained	Sun to Light Shade
Sweet Pepperbush, Clethra*	<i>Clethra alnifolia</i>	4-8 x 3-6	D	Moist to Well Drained	Sun to Part Shade
Dwarf Sweet Pepperbush, Clethra*	<i>Clethra alnifolia</i> 'Hummingbird', 'White Doves', 'Sixteen Candles'	2-3 x 4-6	D	Moist to Well Drained	Sun to Part Shade
Fragrant Daphne	<i>Daphne odora</i>	2-3 x 2-3	E	Well Drained	Part Shade
<u>Japanese Euonymus</u>	<i>Euonymus japonicus</i>	4-10 x 3-6	E	Well Drained	Sun to Shade
Fatsia	<i>Fatsia japonica</i>	6-8 x 6-8	E	Well Drained	Part to Full Shade
<u>Pineapple Guava</u>	<i>Feijoa sellowiana</i>	6-10 x 5-8	E	Well Drained	Sun
Forsythia	<i>Forsythia x intermedia</i>	8-12 x 8-12	D	Well Drained	Sun to Light Shade
Rose of Sharon	<i>Hibiscus syriacus</i>	8-12 x 6-10	D	Well Drained	Sun
Bigleaf Hydrangea	<i>Hydrangea macrophylla</i> Many varieties available	4-6 x 4-8	D	Well Drained	Light to Part Shade
' <u>Carissa</u> ' Holly	<i>Ilex cornuta</i> 'Carissa'	3-4 x 4-5	E	Well Drained	Sun to Part Shade
' <u>Rotunda</u> ' Holly	<i>Ilex cornuta</i> 'Rotunda'	3-4 x 4-5	E	Well Drained	Sun to Part Shade
' <u>Needlepoint</u> ' Holly	<i>Ilex cornuta</i> 'Needlepoint'	8-15 x 6-12	E	Well Drained	Sun to Light Shade
Inkerry Holly*	<i>Ilex glabra</i>	5-8 x 5-8	E	Moist to Well Drained	Sun to Light Shade
<u>Chinese Juniper</u>	<i>Juniperus chinensis</i> Many varieties available	2-12 x 4-8 depending on variety	E	Well Drained to Xeric	Sun
<u>Texas Sage</u>	<i>Leucophyllum frutescens</i>	4-6 x 4-6	E	Well Drained	Sun
<u>Japanese Privet</u>	<i>Ligustrum japonicum</i>	6-12 x 5-10	E	Well Drained	Sun to Light Shade
Leatherleaf Mahonia	<i>Mahonia bealei</i>	6-8 x 3-4	E	Well Drained	Part to Full Shade
Firethorn, Pyracantha	<i>Pyracantha coccinea</i>	6-10 x 4-8	E	Well Drained	Sun to Light Shade
Indian Hawthorne	<i>Rhaphiolepis indica</i>	2-4 x 3-5	E	Well Drained	Sun

Shrubs—*Moderately Salt Tolerant*, continued

Common Name	Botanical Name	Height x Spread (ft.)	Evergreen/Deciduous	Soil	Exposure
Azaleas - Southern Indica Varieties	<i>Rhododendron</i> 'Formosa', 'G.G. Gerbing', 'George Tabor'	6-8 x 6-8	E	Well Drained	Light to Part Shade
Satsuki Azaleas	<i>Rhododendron</i> Satsuki Varieties, 'Gumpo' Series	2-3 x 3-4	E	Well Drained	Light to Part Shade
Stinking Viburnum	<i>Viburnum odoratissimum</i>	8-15 x 6-12	E	Well Drained	Sun to Part Shade
Adam's Needle Yucca*	<i>Yucca filamentosa</i>	2-4 x 2-4	E	Well Drained to Xeric	Sun

Shrubs—*Slightly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Abelia	<i>Abelia x grandiflora</i>	4-8 x 4-6	E	Well Drained	Sun to Part Shade
'Brilliant' Chokeberry*	<i>Aronia arbutifolia</i> 'Brilliantissima'	6-8 x 6-8	D	Moist to Well Drained	Sun to Light Shade
Japanese Barberry	<i>Berberis thunbergii</i>	2-3 x 3-4	D	Well Drained	Sun to Light Shade
Butterfly Bush	<i>Buddleia davidii</i>	4-8 x 4-6	D	Well Drained	Sun to Light Shade
American Beautyberry*	<i>Callicarpa americana</i>	4-6 x 4-6	D	Moist to Well Drained	Sun to Part Shade
Japanese Camellia	<i>Camellia japonica</i> Many varieties available	6-12 x 4-8	E	Well Drained	Light to Part Shade
Sasanqua Camellia	<i>Camellia sasanqua</i>	6-10 x 4-8	E	Well Drained	Light to Part Shade
Gardenia	<i>Gardenia jasminoides</i>	4-8 x 4-8	E	Well Drained	Sun to Light Shade
Winterberry*	<i>Ilex verticillata</i>	6-10 x 6-10	D	Moist to Well Drained	Sun to Light Shade
Banana Shrub	<i>Michelia figo</i>	6-8 x 6-8	E	Well Drained	Sun to Part Shade
<u>Nandina, Heavenly Bamboo</u>	<i>Nandina domestica</i>	5-8 x 3-4	E	Well Drained	Sun to Part Shade
Dwarf Nandina	<i>Nandina domestica</i> 'Firepower', 'Moon Bay', 'Harbor Belle'	2-4 x 1-3	E	Well Drained	Sun to Part Shade
Tea Olive, Osmanthus	<i>Osmanthus fragrans</i> <i>Osmanthus x fortunei</i>	10-15 x 10-15	E	Well Drained	Sun to Part Shade
<u>Double Reeves Spirea</u>	<i>Spirea cantoniensis</i> 'Lanceata'	4-6 x 4-6	D	Well Drained	Sun
Cleyera	<i>Ternstroemia gymnanthera</i>	8-12 x 5-6	E	Well Drained	Sun to Full Shade
Walter's Viburnum*	<i>Viburnum obovatum</i>	4-12 x 4-10	E	Moist to Well Drained	Sun

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Tinus Viburnum, Laurustinus	<i>Viburnum tinus</i>	5-7 x 5-7	E	Well Drained	Sun to Part Shade
Weigela	<i>Weigela florida</i>	4-6 x 4-6	D	Well Drained	Sun to Light Shade

VINES

Vines—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height	Evergreen/Deciduous	Soil	Exposure
Climbing Fig	<i>Ficus pumila</i>	30'+	E	Well Drained	Sun to Shade
<u>Carolina Jessamine*</u>	<i>Gelsemium sempervirens</i>	10'-20'	E	Moist to Well Drained	Sun to Pt. Shade
English Ivy	<i>Hedera helix</i>	50'+	E	Well Drained	Sun to Shade
Coral Honeysuckle*	<i>Lonicera sempervirens</i>	10'-20'	E	Moist to Well Drained	Sun to Pt. Shade
Goldflame Honeysuckle	<i>Lonicera x heckrottii</i>	10'-20'	E	Moist to Well Drained	Sun to Lt. Shade
<u>Virginia Creeper*</u>	<i>Parthenocissus quinquefolia</i>	30'+	D	Moist to Well Drained	Sun to Shade
Lady Banks' Rose	<i>Rosa banksiase</i> 'Lutea'	20'	D	Well Drained	Sun to Lt. Shade
<u>Confederate Jasmine</u>	<i>Trachelospermum jasminoides</i>	15'	E	Well Drained	Sun
Fatshedera	X <i>Fatshedera lizei</i>	8'	E	Moist to Well Drained	Pt. Shade to Shade

PALMS

Palms—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Soil	Exposure
Dwarf Palmetto*	<i>Sabal minor</i>	4-6 x 4-6	Moist to Well Drained	Sun to Part Shade
<u>Cabbage Palm, Palmetto*</u>	<i>Sabal palmetto</i>	10-20 x 10-15	Well Drained	Sun
<u>Saw Palmetto*</u>	<i>Serenoa repens</i>	3-5 x 4-8	Moist to Well Drained	Sun to Part Shade

Palms—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Soil	Exposure
<u>Pindo Palm, Jelly Palm</u>	<i>Butia capitata</i>	10-15 x 10-15	Well Drained	Sun
<u>Mediterranean Fan Palm</u>	<i>Chamaerops humilis</i>	5-6 x 5-6	Well Drained	Sun to Light Shade
King Sago	<i>Cycas revoluta</i>	4-8 x 6	Well Drained	Sun to Part Shade
Emporer Sago	<i>Cycas taitungensis</i>	4-6 x 10	Well Drained	Sun to Part Shade
Needle Palm*	<i>Rhapidophyllum hystrix</i>	5-10 x 5-10	Well Drained	Sun to Part Shade
Chinese Windmill Palm	<i>Trachycarpus fortunei</i>	10-20 x 6-12	Well Drained	Sun to Part Shade

Ornamental Grasses—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread	Soil Conditions	Exposure
Pampas Grass	<i>Cortaderia selloana</i>	8' x 6'	Moist to Well Drained	Full Sun
Lyme Grass	<i>Leymus arenarius</i>	2' x 4'	Well Drained to Xeric	Full Sun
Maiden Grass	<i>Miscanthus sinensis</i>	4'-8' x 3'-6'	Moist to Well Drained	Full Sun
Muhly Grass*	<i>Muhlenbergia capillaris</i>	3' x 3'	Well Drained to Xeric	Full Sun
Bitter Panicum*	<i>Panicum amarum</i>	3' x 2'	Well Drained to Xeric	Full Sun
Sand Cordgrass*	<i>Spartina bakeri</i>	3' x 3'	Well Drained	Full Sun

Ornamental Grass—*Slightly Salt Tolerant*

Common Name	Botanical Name	Height x Spread	Soil Conditions	Exposure
Panic Grass*	<i>Panicum virgatum</i>	4'-8' x 2'-4'	Moist to Well Drained	Full Sun
Fountain Grass	<i>Pennisetum alopecuroides</i>	3' x 2'	Moist to Well Drained	Full Sun

PERENNIALS

Perennials—*Highly Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Exposure	Soil
<u>Blanket Flower, Gaillardia*</u>	<i>Gaillardia pulchella</i>	1-2 x 1-2	Sun	Well Drained to Xeric
<u>Daylily</u>	<i>Heemerocallis</i> species and hybrids	1-4 x 1-4	Sun/Partial Shade	Moist to Well Drained
<u>Lantana</u>	<i>Lantana camara</i> <i>Lantana montevidensis</i>	2-4 x 3-6	Sun	Well Drained to Xeric
<u>Prickly Pear Cactus*</u>	<i>Opuntia compressa</i>	1-2 x 2-3	Sun	Well Drained to Xeric
<u>Lavender Cotton</u>	<i>Santolina chamaecyparissus</i>	1-2 x 2	Sun	Well Drained
<u>Seaside Goldenrod*</u>	<i>Solidago sempervirens</i>	4-6 x 3-4	Sun	Well Drained to Xeric

Perennials—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height x Spread (ft.)	Exposure	Soil
<u>Fern Leaf Yarrow</u>	<i>Achillea filipendulina</i>	3-4 x 2-3	Sun	Well Drained
<u>Common Yarrow</u>	<i>Achillea millefolium</i>	2-3 x 3	Sun	Well Drained to Xeric
Agapanthus	<i>Agapanthus africanus</i>	2-4 x 2	Sun to Part Shade	Well Drained

Perennials—**Moderately Salt Tolerant**, continued

Common Name	Botanical Name	Height x Spread (ft.)	Exposure	Soil
Sea Thrift	<i>Armeria maritima</i>	1 x 1	Sun to Part Shade	Well Drained
<u>Butterfly Weed*</u>	<i>Asclepias tuberosa</i>	2-3 x 2-3	Sun	Well Drained to Xeric
<u>Asparagus Fern</u>	<i>Asparagus densiflorus</i> 'Sprengeri'	2-3 x 2-3	Sun to Part Shade	Well Drained
<u>Crinum Lily</u>	<i>Crinum</i> species and hybrids	2-4 x 2-4	Sun to Part Shade	Moist to Well Drained
<u>Mexican Heather</u>	<i>Cuphea hyssopifolia</i>	1 x 2	Sun	Well Drained
<u>Hardy Ice Plant</u>	<i>Delosperma cooperi</i> <i>Delosperma nubigenum</i>	6" x 1-2	Sun	Well Drained to Xeric
<u>Cheddar Pinks, Dianthus</u>	<i>Dianthus gratianopolitanus</i>	6"-1 x 1-2	Sun	Well Drained to Xeric
<u>Hummingbird Plant</u>	<i>Dicliptera suberecta</i>	1-2 x 3-4	Sun	Well Drained
<u>Firebush*</u>	<i>Hamelia patens</i>	3-5 x 3-4	Sun	Well Drained
Hardy Ginger Lily	<i>Hedychium</i> species and hybrids	4-6 x 3-5	Sun to Part Shade	Moist to Well Drained
<u>Candytuft</u>	<i>Iberis sempervirens</i>	6"-1 x 2-3	Sun	Well Drained
<u>Red False Aloe</u>	<i>Hesperaloe parviflora</i>	3-4 x 2-4	Sun	Well Drained to Xeric
<u>Turk's Cap*</u>	<i>Malvaviscus drummondii</i>	3-4 x 3-4	Sun	Well Drained
Nippon Daisy	<i>Nipponanthemum nipponicum</i>	2-3 x 2-3	Sun	Well Drained
Seashore Mallow*	<i>Kosteletzkya virginica</i>	4-6 x 3-4	Sun to Part Shade	Moist to Well Drained
<u>Firecracker Plant</u>	<i>Russelia equisetiformis</i>	3-4 x 3-4	Sun	Well Drained
Purple Heart	<i>Setcreasea pallida</i>	1 x 2	Sun to Light Shade	Well Drained
<u>Hen and Chicks</u>	<i>Sempervivum tectorum</i>	6"-1 x 1	Sun	Well Drained to Xeric
<u>Society Garlic</u>	<i>Tulbughia violacea</i>	1 x 1	Sun	Well Drained

Perennials—**Slightly Salt Tolerant**

Common Name	Botanical Name	Height x Spread (ft.)	Exposure	Soil
Angel's Trumpets	<i>Brugmansia</i>	4-6 x 4-6	Sun to Part Shade	Well Drained
Canna Lily	<i>Canna</i> hybrids	4-8 x 2-6	Sun to Part Shade	Moist to Well Drained
Holly Fern	<i>Cyrtomium falcatum</i>	1-2 x 1-2	Part Shade to Shade	Moist to Well Drained
Golden Dewdrop	<i>Duranta erecta</i>	3-5 x 3-5	Sun to Part Shade	Well Drained
Purple Coneflower*	<i>Echinacea purpurea</i>	3-5 x 2-4	Sun to Part Shade	Well Drained
Hardy Hibiscus*	<i>Hibiscus moscheutos</i> <i>Hibiscus coccineus</i> <i>Hibiscus</i> hybrids	4-6 x 4-6	Sun to Light Shade	Moist to Well Drained

Common Name	Botanical Name	Height x Spread (ft.)	Exposure	Soil
Angel's Trumpets	<i>Brugmansia</i>	4-6 x 4-6	Sun to Part Shade	Well Drained
Canna Lily	<i>Canna</i> hybrids	4-8 x 2-6	Sun to Part Shade	Moist to Well Drained
Holly Fern	<i>Cyrtomium falcatum</i>	1-2 x 1-2	Part Shade to Shade	Moist to Well Drained
Golden Dewdrop	<i>Duranta erecta</i>	3-5 x 3-5	Sun to Part Shade	Well Drained
Purple Coneflower*	<i>Echinacea purpurea</i>	3-5 x 2-4	Sun to Part Shade	Well Drained
Hardy Hibiscus*	<i>Hibiscus moscheutos</i> <i>Hibiscus coccineus</i> <i>Hibiscus</i> hybrids	4-6 x 4-6	Sun to Light Shade	Moist to Well Drained
Hosta	<i>Hosta</i> species and hybrids	1-3 x 1-3	Part to Full Shade	Well Drained
<u>Red Hot Poker</u>	<i>Kniphofia</i> species and hybrids	2-4 x 1-3	Sun	Well Drained
Daffodil	<i>Narcissus</i>	1 x 1	Sun to Part Shade	Well Drained
Leadwort, Blue jasmine	<i>Plumbago auriculata</i>	3-4 x 3-4	Sun	Well Drained
Dwarf Mexican Petunia	<i>Ruellia brittoniana</i> 'Katie'	6" x 1	Sun to Light Shade	Well Drained
<u>Autumn Sage*</u>	<i>Salvia greggii</i> <i>Salvia microphylla</i>	2-4 x 2-4	Sun to Light Shade	Well Drained
Princess Flower	<i>Tibouchina urvilleana</i>	3-5 x 3-5	Sun to Light Shade	Well Drained
<u>Common Thyme</u>	<i>Thymus vulgaris</i>	1 x 1	Sun	Well Drained
Verbena*	<i>Verbena canadensis</i>	1 x 2-3	Sun to Light Shade	Moist to Well Drained

TURF GRASSES

Common Name	Salt Tolerance	Drought Tolerance	Shade Tolerance	Maintenance Level	Fertilizer Requirements	Wear Tolerance
Centipede	Slight – high soil pH often a problem for centipede in coastal sites	Moderate	Poor	Low	Very Low	Good
St. Augustine	Moderate	Low	Very Good	Low - Moderate	Moderate	Good
Zoysia	High	High	Good	Moderate	Moderate	Excellent
Common Bermuda	High	High	Very Poor	High	High	Excellent
Hybrid Bermuda	High	High	Very Poor	Very High	Very High	Excellent
Seashore Paspalum	Very High – tolerates irrigation w/ saline water	Moderate	Poor	Moderate	Moderate	Good

For more information about **Seashore Paspalum** see the following online factsheet:
Seashore Paspalum for Florida Lawns— <http://edis.ifas.ufl.edu/EP059>

Drought Tolerant Perennials

The following drought tolerant perennials perform well in sandy, poor soils. Though they are not known to tolerate salt spray, they are recommended for coastal gardens when planted in sites sheltered from salt spray.

Common Name	Scientific Name
'Blue Fortune' Hyssop	<i>Agastache</i> x 'Blue Fortune'
Arkansas Blue Star*	<i>Amsonia hubrichtii</i>
Texas Firecracker*	<i>Anisacanthus wrightii</i>
'Powis Castle' Artemisia	Artemisia x 'Powis Castle'
False Wild Indigo*	<i>Baptisia</i> species and hybrids
Wine Cups*	<i>Callirhoe involucrata</i>
Threadleaf Coreopsis*	<i>Coreopsis verticillata</i>
Gaura*	<i>Gaura lindheimeri</i>
Russian Sage	<i>Perovskia</i> hybrids
Moss Pinks*	<i>Phlox subulata</i>
'Goldsturm' Rudbeckia*	<i>Rudbeckia fulgida</i> 'Goldsturm'
Mexican Bush Sage	<i>Salvia leucantha</i>
'Indigo Spires' Salvia	<i>Salvia</i> x 'Indigo Spires'
Stonecrops	<i>Sedum</i> species
Lamb's Ear	<i>Stachys byzantina</i>

Salt Tolerant Annuals

Most annuals do not tolerate salt spray but the following have proven to tolerant moderate levels. Most are perennials in warmer climates but are usually killed by the average winter temperatures in this area and so are best grown as annuals. In addition to those listed below, Allamanda, Bouganvilla and Mandevilla vines all tolerate moderate levels of salt spray, though are not hardy in this climate (USDA Hardiness zone 8a).

Common Name	Scientific Name
Baby Sun Rose	<i>Aptenia cordifolia</i>
Blue Daze	<i>Evolvulus glomeratus</i>
Joseph's Coat	<i>Alternanthera ficoidea</i>
Vinca, Periwinkle	<i>Catharanthus roseus</i>
Pentas	<i>Pentas lanceolata</i>
Moss Rose	<i>Portulaca grandiflora</i>
Coleus	<i>Solenostemon</i> hybrids

Drought Tolerant Annuals

The following annuals do not have any known salt spray tolerance but do grow well even in sandy, poor soils and are therefore recommended for planting in coastal gardens in sheltered sites.

Common Name	Scientific Name
Wheat Celosia	<i>Celosia spicata</i>
Globe Amaranth	<i>Gomphrena globosa</i>
Melampodium	<i>Melampodium padulosum</i>
Porterweed	<i>Stachytarpheta jamaicensis</i>
Mealycup Sage*	<i>Salvia farinacea</i>
Mexican Sunflower	<i>Tithonia rotundifolia</i>
Narrow Leaf Zinnia	<i>Zinnia angustifolia</i>

Groundcovers—*Highly Salt Tolerant*

Common Name	Botanical Name	Height	Exposure	Soil Conditions
Winter Creeper	<i>Euonymus fortunei</i>	6"-2'	Full Sun to Full Shade	Well Drained
'Blue Pacific' Juniper	<i>Juniperus conferta</i> 'Blue Pacific'	12"-18"	Full Sun	Well Drained to Xeric
Spreading Liriope	<i>Liriope spicata</i>	12"	Full Sun to Full Shade	Moist to Well Drained
Mondograss	<i>Ophiopogon japonicus</i>	6"-10"	Part to Full Shade	Well Drained
Creeping Rosemary	<i>Rosmarinus officinalis</i> 'Prostratus'	12"-18"	Full Sun	Well Drained to Xeric
Golden Stonecrop	<i>Sedum acre</i>	4"- 6"	Full Sun to Light Shade	Well Drained

Groundcovers—*Moderately Salt Tolerant*

Common Name	Botanical Name	Height	Exposure	Soil Conditions
Beach Wormwood*	<i>Artemisia stelleriana</i>	6"- 12"	Full Sun	Well Drained to Xeric
Silver and Gold	<i>Chrysanthemum pacificum</i>	12"-18"	Full Sun	Well Drained
Algerian Ivy	<i>Hedera canariensis</i>	12"	Light to Full Shade	Well Drained
English Ivy	<i>Hedera helix</i>	6"-12"	Part to Full Shade	Well Drained
Creeping Juniper*	<i>Juniperus horizontalis</i>	10"-12"	Full Sun	Well Drained to Xeric
Liriope	<i>Liriope muscarii</i>	12"- 18"	Light to Full Shade	Moist to Well Drained
Star Jasmine	<i>Trachelospermum asiaticum</i>	6"-8"	Light to Part Shade	Well Drained

Groundcovers—*Slightly Salt Tolerant*

Common Name	Botanical Name	Height	Exposure	Soil Conditions
Cast Iron Plant	<i>Aspidistra elatior</i>	3'	Part to Full Shade	Well Drained
Beach St. John's Wort*	<i>Hypericum reductum</i>	12"	Full Sun	Well Drained to Xeric
Periwinkle, Vinca	<i>Vinca minor</i>	6"	Light to Full Shade	Moist to Well Drained

For More Information About Listed Plants

For more information about each plant, including recommended varieties for Pender County landscapes, visit the **Recommended Plants Lists** on the Pender County Cooperative Extension website, <http://pender.ces.ncsu.edu>. Click on the Lawn & Garden link to access the lists.

Or visit the **NCSU Urban Horticulture** website, www.ncstate-plants.net and click on the **Plant Fact Sheets** link to access hundreds of fact sheets with complete details about each plant, including images.

For complete **information** about turf grass care and selection, see the individual lawn maintenance calendars and other publications available from North Carolina Cooperative Extension at your local NC Cooperative Extension office or the **NCSU TurfFiles** website: www.turffiles.ncsu.edu

REFERENCES

- Black, R.J. "Salt Tolerant Plants for Florida." 26 Oct. 2004.
http://edis.ifas.ufl.edu/BODY_EP012
- Black, R.J. and Edward Gilman. Landscape Plants for the Gulf and South Atlantic Coast.
 Gainesville: University Press of Florida, 2004
- Chaplin, Lois Trigg. The Southern Gardeners Book of List: The Best Plants for All Your Needs,
 Wants and Whims. Dallas: Taylor Publishing, 1994.
- Dirr, Michael A. Dirr's Trees and Shrubs for Warm Climates. Portland: Timber Press, 2002.
- Graetz, Karl E. Seacoast Plants of the Carolinas. Raleigh: Sea Grant Publication, 1974.
- Hansen, Keith. "Landscape Development for Texas Coastal Areas." 26 Oct. 2004. <http://aggiehorticulture.tamu.edu/southerngarden/coastplants.html>
- Kowalsick, Tom. "Seashore Plantings." 26 Oct. 2004.
<http://www.cce.cornell.edu/suffolk/grownet/treselect/seashore.html>
- Sullivan, Barbara J. Garden Perennials for the Coastal South. Chapel Hill: University of
 North Carolina Press, 2003.

Prepared by:

Charlotte Glen, *Extension Agent*
Agriculture—Horticulture

North Carolina Cooperative Extension—Pender County Center

With contributions and assistance from the following:

Matthew Martin, *Area Specialized Agent – Turfgrass*
David Nash, *Area Specialized Agent – Coastal Management*

