TREES

FOR

OAK ISLAND

The Oak Island Tree City USA Advisory Board would like to acknowledge the assistance that has been provided to us by the North Carolina Extension Service, in particular the Brunswick and New Hanover County offices. Materials produced by Charlotte Glen of the Extension Service were used extensively throughout this pamphlet with the permission of the Extension Service.

Members of the Oak Island Tree City USA Working Group honor the memory of Extension Agent David Nash who for years shared his knowledge of trees and horticulture with us. His contributions to this publication and our community were invaluable.

Trees

Preserving or planting trees benefits not only individual homeowners but the community at large. Trees bring an element of beauty to the landscape. Yet the list of practical reasons for preserving and planting trees is lengthy. Trees help homeowners conserve energy, block noise and wind, and consume excess storm water. Not only do trees increase property values, they are also beneficial to human health by absorbing carbon dioxide and filtering pollutants from the air.

Trees play a major role in storm water management. According to a study by the U.S. Forest Service in 2006, publicly-managed trees in the city of Charleston, South Carolina, whose climate is similar to our own, intercepted 28.3 million gallons of storm water annually - that's 1,858 gallons per tree! According to the study, the trees that were the most effective in reducing storm water runoff were laurel oaks, water oaks and live oaks. In fact, the study showed that for every dollar spent on tree maintenance, the town received a payback of $1.35 in storm water management costs.

Visitors and new residents to our area are impressed by the town's namesake oak trees. Oak Island's live oaks (Quercus virginiana) are particularly well suited for the coastal environment, with their dense wood trunks and broad canopies, enabling them to survive coastal storms. Live oaks and their "cousins", the sand, laurel and water oak, are sometimes called semi-deciduous trees. These trees do indeed shed their leaves, but not in the fall. The old leaves are pushed off by new spring growth. Thus these oaks provide some greenery in the landscape year-round.

Before planting a tree from the nursery, property owners should consider its location. Certain trees that will thrive on the mainland or in the forested area north of the Davis Canal, are not well suited to the beach area of the island. It is recommended that most trees planted on Oak Island have some degree of salt tolerance. Information in this pamphlet will hopefully help homeowners choose the appropriate tree for their location.

Homeowners also need to determine whether they want to have shade year-round or shade only in the summer months. Conifers or semi-deciduous trees (together called evergreens) provide shade year-round, while deciduous trees provide shade primarily during the summer months. Deciduous trees, particularly when planted on the southern side of a house, will help reduce air conditioning costs in the summer, but not prevent the sun from naturally warming the house during the winter months.

Extension agents and volunteers with the Master Gardening Program are only a phone call away. When in doubt concerning landscaping questions, call the Extension Service in Bolivia at (910) 253 -2610.

Coastal Challenges

Plants growing at the beach are subjected to environmental conditions much different from 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 survive in the frontal dune area. As the 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 salt laden winds 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 spray may be planted with species having little or no salt tolerance depending upon the degree they are protected from blowing winds. (Homes in the beach area built adjacent to the marsh will require landscape plants with at least moderate salt tolerance on the landward side of the house.) Frequent overhead irrigation rinses salt accumulations off plant foliage, reducing the impact to less salt-tolerant species.

Landscaping at the Beach

Properties within at least one-eighth of a mile of the oceanfront should be landscaped with plants known to have a moderate to high 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 consider when choosing plants for coastal landscapes include soil type, soil pH, and sun and wind exposure.

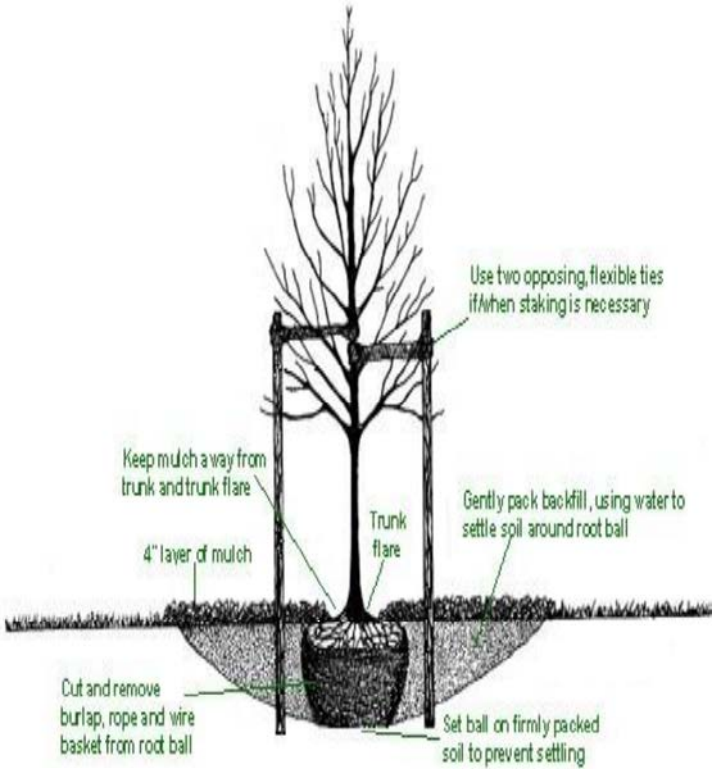
Tree Planting

Correct planting techniques begin at the nursery. Do not pick up a tree by its trunk when loading, and always shield the foliage from the wind during transport.

When planting a tree, dig a hole two to four times as wide as the root ball (container), and no deeper than the height of the root ball. (The soil from the hole will be used to backfill around the root ball.) The ideal time for planting a tree is in the fall or early spring before bud break. Always consider the ultimate size of a tree when choosing a tree and where to plant it.

To remove a tree from a container, tap the bottom and sides of the container until you loosen the root ball. Gently remove the tree from the container, checking for circling roots. Separate any circling roots or they will continue to grow in a circular pattern. Place the tree in the hole. The top of the root ball should be about 1/2 to 1 inch above the surrounding soil. We do not recommend the addition of organic material to the backfill soil. Tamp the soil as you backfill; don't wait until the planting is finished to compact the soil.

After planting the tree, use soil to build up a 4-inch tall berm around the edge of the hole. The berm will make it easier to water the tree. Fill the area with approximately 4 inches of mulch; any more mulch can restrict the movement of water and reduce oxygen levels. The mulch will help the soil retain moisture, as well as reduce competition from weeds, as well as reduce competition from weeds. Avoid placing mulch directly against the trunks of newly planted trees. Right after planting, water the tree by filling the basin formed by the berm with water several times. Water the tree lightly every day the first week; every other day the second week; every third day the third week; and once a week thereafter if needed.



New York Department of Environmental Conservation

Key to the Tables (that follow)

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 the spring.

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

- **Full sun** indicates a site that receives at least 8 hours 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 periods (less than 12 hours) 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.

The following plant lists have been compiled to assist homeowners and landscape professionals to choose appropriate plants for coastal landscapes. The lists are divided according to the size of tree and salt tolerance (high, moderate, slight). These lists should not be considered all inclusive.

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

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/Deciduous	Soil	Exposure
Trident Maple	*Acer buergerianum*	20-25 x 10-15	D	Well Drained	Sun
Arizona Cypress	*Cupressus arizonica*	10-30 x 8-20	E	Well Drained	Sun
Italian Cypress	*Cupressus sempervirens*	20-30 x 4-8	E	Well Drained	Sun
Loquat	*Eriobotrya japonica*	15-20 x 15-20	E	Well Drained	Sun to Light Shade
Eucalyptus	*Eucalyptus cinerea*	15-30 x 10-20	E	Well Drained	Sun
Dahoon Holly*	*Ilex cassine*	20-30 x 8-15	E	Moist to Well Drained	Sun
Myrtle Leaf Holly*	*Ilex cassine* variety *myrtifolia*	10-20 x 8-12	E	Well Drained	Sun
American Holly*	*Ilex opaca*	20-30 x 15-20	E	Moist to Well Drained	Sun to Part Shade
Foster's #2 Holly*	*Ilex x attenuata* 'Fosters #2'	20-30 x 10-15	E	Moist to Well Drained	Sun to Part Shade
'Nellie Stevens' Holly	*Ilex x* 'Nellie R. Stevens'	15-25 x 10-15	E	Moist to Well Drained	Sun to Part Shade

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/ Deciduous	Soil	Exposure
Hollywood Juniper	*Juniperus chinensis* 'Kaizuka' also known as 'Torulosa'	15-25 x 8-15	E	Well Drained to Xeric	Sun
Golden Rain Tree	*Koelreuteria paniculata*	30-40 x 30-40	D	Well Drained	Sun
Crape Myrtle	*Lagerstroemia* hybrids – many varieties available	15-30 x 10-25 Depending on Variety	D	Well Drained	Sun
'Little Gem' Magnolia*	*Magnolia grandiflora* 'Little Gem'	20-25 x 10-15	E	Moist to Well Drained	Sun to Part Shade
Sweet Bay*	*Magnolia virginiana*	25-30 x 15-20	Semi-E	Moist to Well Drained	Sun to Part Shade
Chinese Pistache	*Pistacia chinensis*	30-35 x 25-35	D	Well Drained	Sun
Carolina Cherry Laurel*	*Prunus caroliniana*	20-30 x 15-20	E	Well Drained to Xeric	Sun to Part Shade
'Dreamcatcher' Flowering Cheery	*Prunus x* 'Dreamcatcher'	20-30 x 20-30	D	Well Drained	Sun
'Okame' Flowering Cherry	*Prunus x* 'Okame'	20-30 x 20-30	D	Well Drained	Sun
Japanese Snowbell	*Styrax japonicus*	20-30 x 20-30	D	Well Drained	Sun to Part Shade
Tamarix	*Tamarix ramosissima*	10-20 x 8-12	D	Well Drained to Xeric	Sun
Chastetree	*Vitex agnus-castus*	15-20 x 10-15	D	Well Drained	Sun

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

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/ Deciduous	Soil	Exposure
River Birch*	*Betula nigra*	40-70 x 40-60	D	Moist to Well Drained	Sun
Atlas Cedar	*Cedrus atlantica*	40-60 x 30-40	E	Well Drained	Sun
Deodar Cedar	*Cedrus deodora*	50-70 x 50-70	E	Well Drained	Sun
Sugarberry*	*Celtis laevigata*	60-80 x 50-70	D	Moist to Well Drained	Sun
Ginkgo, Maidenhair Tree	*Ginkgo biloba* [1]	50-70 x 30-40	D	Well Drained	Sun
Black Gum*	*Nyssa sylvatica*	30-50 x 20-30	D	Moist to Well Drained	Sun
Longleaf Pine*	*Pinus palustris*	50-60 x 15-20	E	Well Drained	Sun
Laurel Oak*	*Quercus hemisphaerica*	40-60 x 30-40	E	Moist to Well Drained	Sun

[1] Only plant named cultivars to avoid a female trees that have messy and smelly fruit.

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/ Deciduous	Soil	Exposure
Water Oak*	*Quercus nigra*	50-80 x 30-60	D	Moist to Well Drained	Sun
Shumard Oak*	*Quercus shumardii*	40-60 x 40-60	D	Moist to Well Drained	Sun
Black Locust*	*Robinia pseudoacacia*	30-50 x 20-35	D	Moist to Xeric	Sun
Lacebark Elm	*Ulmus parvifolia*	40-50 x 30-40	D	Well Drained	Sun

Common Name	Botanical Name	Height x Spread (ft)	Evergreen/ Deciduous	Soil	Exposure
Japanese Cedar	*Cryptomeria japonica*	40-60 x 20-30	E	Moist to Well Drained	Sun
American Beech*	*Fagus grandifolia*	50-70 x 40-60	D	Well Drained	Sun
Loblolly Pine*	*Pinus taeda*	60-90 x 20-30	E	Moist to Well Drained	Sun
Baldcypress*	*Taxodium distichum*	50-70 x 20-30	D	Wet to Well Drained	Sun

The largest living thing on earth: a tree. The oldest living thing: a tree. The symbol of life, of family branchings, a graph of weather and time, and a sentinel to history. Source of food, fighter against wind and water erosion, the substance of building and the pages upon which we scribble.

David Krotz, Co-Founder, Trees Forever