

## A Planting Guide for Coastal Communities

### Abstract

A coastal planting guide is presented as a tool for Extension professionals to create and promote for landscapers and property owners in coastal areas. As coastal regions are subject to salt spray and occasional flooding, information is needed on native plants that can grow under such conditions. Such a guide should include salt spray and soil salt tolerances of native plants in addition to growth preferences. With increasing population pressures in coastal areas and predictions of increased storm intensity and frequency due to climate change, this tool can guide coastal residents and the landscaping industry in sustainable choices and practices.

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## Introduction

Coastal communities are often subject to harsh environmental conditions, including high soil salinity, strong winds and salt spray, occasional flooding due to storm surge, and erosion. A coastal planting guide that highlights native plants able to withstand these harsh growing conditions is a valuable and needed tool for Extension professionals to create for their state or region. Many coastal states offer a variety of planting guides, but only a few offer detailed information on salt tolerance of plants for landscaping purposes. The population of the U.S. living within coastal watershed counties has increased by 45% between 1970 and 2010, excluding Alaska (U.S. Census Bureau), and a 9% increase is predicted within the same area by 2020 (NOAA, 2011; U.S. Census Bureau, 2011; Woods & Poole, 2011).

The combination of increasing coastal population pressures and climate change predictions of more numerous and/or more intense coastal storms (IPCC, 2007) points to the need for Extension resources to address consequences of these pressures. The development of a coastal planting guide also promotes native species for landscaping by Extension professionals instead of exotics as

discussed by Hostetler and Main (2010), and may lead to collaborative efforts with local nurseries and universities on the propagation of native, salt tolerant species that are appealing landscape plants.

## Suggested Contents of a Coastal Planting Guide

Any plant guide should include information on growth form, such as tree, shrub, herbaceous perennial, or vine, as well as information on general growth characteristics such as average height, light, and soil preferences. What sets a coastal planting guide apart is the inclusion of salinity tolerance in terms of soil salinity and salt spray tolerance (Table 1). Salts from coastal water bodies (in addition to road/pavement de-icing materials) pose challenges to those landscaping in coastal areas. Salts can affect plants in the form of salt spray or can accumulate in soils. Plant tissues can be damaged by salt spray and high soil salt concentration, and salt spray can also damage leaves. By indicating salt tolerance for the listed species both in the form of salt spray and soil salt tolerance, the guide will provide information for those landscaping directly on the coast, as well as those who are further inland where they are only occasionally impacted by salt spray.

For some species, the data from research studies are clearly consistent, and species can be listed as salt tolerant. For other species, however, depending on how salt tolerance studies were conducted, there are often differences in the results. In these situations, the tolerance can be indicated as "Some references indicate tolerance" so that readers understand that salt tolerance is not definitive. Users of the guide will know their localized landscaping area best. Information from local nurseries, taking note of which native species live and thrive nearby, combined with information offered in the guide may be the best determination of salinity tolerance for specific locations and conditions. In addition, there are cultivars and varieties of species available at local nurseries which may have higher salinity tolerances than those listed.

Plants suggested for exclusion from the guide are nonnative or invasive species, native species that are particularly susceptible to disease or wind damage, and native plants listed by the state as endangered, threatened or of special concern. Native/Naturalized status for each species can be determined using the USDA Plants Database (<http://plants.usda.gov/java>). There are many other plants and horticultural varieties that residents may want to use in landscaping and that are much easier to find in local nurseries than those listed in such a guide. This tool is meant to be a starting place where people can think about the growing conditions on their property such as soil type and exposure to salt and wind, and the mix of desired growth forms (trees, shrubs, herbaceous perennials), as well as learn about possibly unfamiliar native species for landscaping.

**Table 1.**  
Coastal Plant Guide Example

Name	Characteristics	Salinity Tolerance		Growth Conditions
		Spray	Soil	
<i>Photinia pyrifolia</i> Red	Deciduous; Height: 1.8 – 3 m (6 – 10 ft); multi-stemmed; white flower clusters; red fall foliage	Tolerant	Low tolerance	Light: Full sun Soil: Dry

chokeberry				to wet soils; adaptable to a wide variety of conditions
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## Use of a Coastal Planting Guide in Connecticut

Tropical Storm Irene hit the Connecticut coast on August 28, 2011, causing widespread beach and dune erosion and salt spray damage to residential and commercial landscaping. In the 7 months pre-Irene and in the 9 months post-Irene, there has been a significant increase in the number of downloads of the Connecticut coastal planting guide. Between February 2011 (when it was first made available on the Connecticut Sea Grant website) and August 2011, the guide was downloaded 100 times. Between September 2011 and May 2012, the guide was downloaded 485 times, with over 100 downloads in each of March, April, and May 2012 (Mann Whitney U test for pre and post Irene downloads,  $z = 2.2758$ ,  $p = 0.02$ ). It is possible that many coastal residents waited until the spring of 2012 to determine the extent of damage to their landscape plants and were looking for resources to prevent similar damage in future storms.

## Web-Based Resource Examples

Connecticut Coastal Planting Guide:

[http://web2.uconn.edu/seagrant/publications/coastalres/CTCoastal\\_planting.pdf](http://web2.uconn.edu/seagrant/publications/coastalres/CTCoastal_planting.pdf)

Georgia Coastscapes:

<http://www.coastscapes.org/Library/CoastScapesSaltTolerantPlantList%20No%20References.pdf>

Rhode Island Coastal Planting Guide:

<http://www.uri.edu/cels/ceoc/coastalPlants/CoastalPlantGuide.htm>

Texas Coastal Areas

<http://aggie-horticulture.tamu.edu/southerngarden/landtable.html>

King County, Washington Marine Shoreline Landscape Plan

<http://green.kingcounty.gov/gonative/Plan.aspx?Act=view&PlanID=534>

USDA NRCS Plants for Atlantic Coastal Restoration:

[http://www.plantmaterials.nrcs.usda.gov/technical/atlantic\\_restoration.html](http://www.plantmaterials.nrcs.usda.gov/technical/atlantic_restoration.html).

## References

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