# Coastal Wetland Restoration Plant Fact Sheets

When designing a wetland restoration project, such as a living shoreline, mitigation, or treatment wetland, plant selection is one of the most important decisions to be made. Even if everything else is planned perfectly, the wrong plants can lead to project failure. Plant selection depends on a variety of factors, including, but not limited to, salinity, elevation, and flood tolerance.

These fact sheets provide information on a variety of wetland plants that may be used for shoreline restoration projects. Each plant fact sheet includes pictures, listed environmental tolerances, informational websites, and helpful tips for planting.

## Scientific name: Spartina alterniflora

Common name: Smooth cordgrass

USDA plant symbol: SPAL

### Naturally occurs in

• Regularly and irregularly flooded salt and brackish marshes

### Description

• Grows up to 7 feet tall

• Leaves 12 to 20 inches long, rolling inward at the ends

• Stems up to 0.5 inch in diameter and hollow in cross-section

• Spreads primarily by rhizomes

• Wind-pollinated seeds emerge in September and October

### Environmental tolerances

• Soils: tolerates a wide range from fine to coarse

• pH range: 3.7 to 7.9

• Salinity: 0 to 35 ppt

• Elevation: low to mid marsh

• Flooding: regular inundation, 1 to 18 inches of standing water

### Planting

• Plant midway between high and low tide lines

• Space plants about 12 to 18 inches apart

• Plant between April 1 and September 30

• Plant by hand using common garden tools such as spades or post-hole diggers

### Resources

• USDA Plants Database (https://bit.ly/2Kj3U7M)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Juncus roemerianus

Common name: Black needlerush

USDA plant symbol: JURO

### Naturally occurs in

• Brackish marshes

• Upper edges of salt marshes

### Description

• Grows up to 6 feet tall

• Stiff, very pointed leaves

• Short, inconspicuous stems

• Spreads clonally by rhizomes

• Produces mature seeds from July to November

### Environmental tolerances

• Soil: fine to medium textured

• pH range: 4.0 to 7.0

• Salinity: 0 to 35 ppt

• Elevation: low to mid marsh

• Flooding: tolerates regular flooding

### Planting

• Plant at the high tide line

• Space plants about 12 to 18 inches apart

• Plant by hand using common garden tools such as spades

• Plant with transplants in any season other than winter

### Resources

• USDA Plants Database (https://bit.ly/2CZhib4)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Spartina patens

Common name: Saltmeadow cordgrass

USDA plant symbol: SPPA

### Naturally occurs in

• Irregularly flooded, fresh to saline marshes

• Sandy beaches and low dunes

• Borders of salt marshes and inland saline areas

### Description

• Grows up to 4 feet tall

• Stems are stiff, slender, and hollow

• Leaves are up to 1 foot long and less than a half-inch wide

• Spreads by rhizomes

• Wind-pollinated flowers emerge from late June to October

### Environmental tolerances

• Soils: fine to coarse

• pH range: 3.7 to 7.9

• Salinity: 0 to 35 ppt

• Elevation: mid to high marsh

• Flooding: irregular flooding

### Planting

• Plant in mid to high marsh

• Space planting units 6 to 12 inches apart

• Plant using common garden hand tools

• Plant in late winter to early spring

### Resources

• USDA Plants Database (https://bit.ly/2UhzIOX)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Juncus effusus

Common name: Common rush

USDA plant symbol: JUEF

### Naturally occurs in

• Tidal fresh marshes and nontidal marshes

• Wet meadows and wet pastures

### Description

• Grows up to 4 feet tall

• Stems are unbranched, round with vertical ribs,

 and sheathed

• No apparent leaves; has basal sheaths

• Can spread clonally by rhizomes

• Seeds emerge from July to September and can be

 spread by wind, water, or animals

### Environmental tolerances

• Soils: fine sediments

• pH range: 4.0 to 6.0

• Salinity: less than 14 ppt

• Elevation: low to mid marsh

• Flooding: can tolerate regular flooding and standing

 water up to 6 inches

### Planting

• Plant in regularly flooded soils or those with shallow standing water

• Plant in late fall

• Transplants survive best when planted outside of the growing season and when the soil remains saturated

• Space plants 2 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2CWGK0Q)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Field Guide to Coastal Wetland Plants of the

 Southeastern United States (Tiner, 1993)

## Scientific name: Schoenoplectus americanus

Common name: Bulrush

USDA plant symbol: SCAM6

### Naturally occurs in

• Irregularly flooded brackish marshes

• Upper edges of salt and tidal fresh marshes

• Inland saline areas

### Description

• Grows up to 7 feet tall

• Stems are triangular with concave sides

• No apparent leaves

• Can spread by rhizomes or seeds

• Flowers from July to September

### Environmental tolerances

• Soils: fine sediments

• pH range: acidic soils

• Salinity: 2 to 17 ppt

• Elevation: low to mid marsh

• Flooding: irregular flooding up to 1 to 2.5 feet,

 standing water up to 6 inches

### Planting

• Space plugs or transplants 12 to 18 inches apart

• Plant in no more than 3 inches of constant flooding;

 can tolerate up to 18 inches of fluctuating water

• Plant in late spring to early summer

### Resources

• USDA Plants Database (https://bit.ly/2TZL8lc)

• Mississippi Aquatic Plants (jcho.masgc.org)

• US Forest Service (https://bit.ly/2G3i6xr)

• Field Guide to Coastal Wetland Plants of the

 Southeastern United States (Tiner, 1993)

## Scientific name: Typha latifolia

Common name: Broadleaf cattail

USDA plant symbol: TYLA

### Naturally occurs in

• Tidal and nontidal fresh marshes

• Ponds and ditches

### Description

• Grows up to 10 feet tall

• Tall, erect stem

• Leaves are basal and up to 1 inch wide

• Can spread clonally by rhizomes or by seed

• Flowers from March to July

### Environmental tolerances

• Soils: tolerates most soil types

• pH range: tolerates ranges from basic to acidic

• Salinity: fresh to brackish water

• Elevation: low marsh

• Flooding: regular flooding

### Planting

• Plant in low to mid marsh

• Plant in late fall

• Plant transplants 3 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2Vtq9sM)

• Mississippi Aquatic Plants (jcho.masgc.org)

• US Forest Service (https://bit.ly/2WMRI0f)

• Field Guide to Coastal Wetland Plants of the

 Southeastern United States (Tiner, 1993)

## Scientific names: Pontederia cordata

Common name: Pickerelweed

USDA plant symbol: POCO14

### Naturally occurs in

• Tidal and nontidal fresh marshes

• Shallow areas of ponds and lakes

### Description

• Grows up to 4 feet tall

• Waxy leaves at ends of stems

• Leaves range from oval to heart-shaped, 2 to 10 inches

 long, and 0.5 to 6 inches wide

• Spreads by creeping rhizomes and seed

• Seeds emerge between May and October on showy,

 purple flowers

### Environmental tolerances

• Soils: tolerates a wide range from fine to coarse soils

• pH range: 6.0 to 8.0

• Salinity: less than 3 ppt

• Elevation: low marsh

• Flooding: tolerates irregular inundation up to 20 inches

### Planting

• Transplants should be planted in saturated but not continuously flooded sediments

• Plant transplants in late spring to early summer

• Requires partial to full sun; will not grow in full shade

• Spreads rapidly; plant 2 to 3 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2YViVQ2)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Sagittaria latifolia

Common name: Duck potato

USDA plant symbol: SALA2

### Naturally occurs in

• Tidal and nontidal marshes and swamps

• Borders of streams, lakes, and ponds

### Description

• Grows up to 4 feet tall

• Single, elongated stem

• Leaves are broadly or narrowly arrow-shaped

• Leaves are 2 to 16 inches long and 1 to 10 inches wide

• Spreads primarily by seed and vegetatively by

 underground tubers

### Environmental tolerances

• Soils: tolerates a range from fine to coarse sediments

• pH range: 6.0 to 6.5

• Salinity: fresh to lightly brackish waters

• Elevation: low marsh

• Flooding: tolerant of inundation 6 to 12 inches deep

### Planting

• Plant below high tide line

• Plant in mid to late spring

• In degraded sites, plant 1 to 2 feet apart

• In ideal site conditions, plant up to 6 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2Dai5Gf)

• Field Guide to Coastal Wetland Plants of the

 Southeastern United States (Tiner, 1993)

## Scientific name: Distichlis spicata

Common name: Salt grass

USDA plant symbol: DISP

### Naturally occurs in

• Irregularly flooded salt marshes

• Tidal fresh and brackish marshes

### Description

• Grows up to 16 inches tall

• Stems are stiff, hollow, and round

• Leaves are numerous, 2 to 4 inches long, less than

 0.5 inch wide, and rolled inward

• Spreads primarily by rhizomes and sometimes stolons

• Flowers between June and October

### Environmental tolerances

• Soils: tolerates fine to coarse sediments

• pH range: 6.8 to 9.2

• Salinity: 0 to 50 ppt; optimum growth around 15 ppt

• Elevation: mid to high marsh

• Flooding: highly flood-tolerant but prefers irregular flooding

### Planting

• Plant at or just below high tide line

• Plant in late spring to early summer

• Spreads rapidly; space transplants 3 to 5 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2UhC5B7)

• US Forest Service (https://bit.ly/2DarUnB)

• Selected Plants of Grand Bay National Estuarine Research Reserve and Grand Bay National Wildlife Refuge

 (https://bit.ly/2IlydIn)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Ilex vomitoria

Common name: Yaupon

USDA plant symbol: ILVO

### Naturally occurs in

• Upper edges of salt and brackish marshes

• Nontidal forested wetlands

### Description

• Grows up to 28 feet tall

• Evergreen shrub

• Leaves are oval, dark green, and up to 1.25 inch long

### Environmental tolerances

• Soils: will grow in a variety of soil types but prefers

 coarse sediments

• pH range: 4.5 to 7.0

• Salinity: moderately tolerant to salinity and salt spray

• Elevation: high marsh

• Flooding: tolerates occasional flooding

### Planting

• Most easily established by using transplants

• Plant in spring and fall

• Space about 20 feet apart

• Plant on upper edges of marsh above high tide line

### Resources

• USDA Plants Database (https://bit.ly/2WLzcW7)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Baccharis halimifolia

Common name: Eastern baccharis

USDA plant symbol: BAHA

### Naturally occurs in

• Upper edges of irregularly flooded salt, brackish, and tidal fresh marshes

### Description

• Grows up to 10 feet tall

• Deciduous shrub

• Egg-shaped, coarse-toothed to smooth leaves, up to 2.5 inches long

• Easily confused with Iva frutescens (marsh elder), but eastern baccharis has alternate leaves, while marsh elder has opposite leaves

### Environmental tolerances

• Soils: tolerates a wide range of soils from fine to coarse

• pH range: 5.0 to 8.0

• Salinity: tolerates salt spray up to 15 ppt

• Elevation: high marsh

• Flooding: tolerates irregular flooding but cannot survive standing water

### Planting

• Plant shrubs at least 7 feet apart

• Plant on upper edge of marsh above high tide line

• Plant in early to late spring

### Resources

• USDA Plants Database (https://bit.ly/2FRFv3r)

• Selected Plants of Grand Bay National Estuarine

 Research Reserve and Grand Bay National Wildlife Refuge (https://bit.ly/2IlydIn)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

## Scientific name: Uniola paniculata

Common name: Sea oats

USDA plant symbol: UNPA

### Naturally occurs in

• Upper dunes along beachfronts

• Barrier islands

### Description

• Grows up to 6 feet tall

• Leaves can grow up to 24 inches

• Leaves less than 1 inch wide

• Seed head produced in summer

• Spreads primarily by rhizomes when plant base is

 covered by sand

### Environmental tolerances

• Soils: prefers coarse, sandy sediment

• pH range: 6.9 to 7.9

• Salinity: thrives in salt spray but cannot tolerate

 waterlogged soils

• Elevation: upland sand dunes

• Flooding: requires dry conditions

### Planting

• Space plantings 2 to 5 feet apart

• Plant any time of year

• Plant on upland berms in sand

### Resources

• USDA Plants Database (https://bit.ly/2Vq4voY)

• Mississippi Aquatic Plants (jcho.masgc.org)

## Scientific name: Panicum amarum

Common name: Bitter panicum

USDA plant symbol: PAAM2

### Naturally occurs in

• Coastal dunes

### Description

• Grows up to 7 feet tall

• Leaves are 0.25 to 0.5 inch wide and 7 to 20 inches long

• Leaves are bluish-green

• Spreads extensively by rhizomes to form clumps

### Environmental tolerances

• Soils: dry, sandy soils

• pH range: 5.0 to 7.5

• Salinity: can tolerate salt spray but will not survive waterlogged soils

• Elevation: upland on dunes

• Flooding: needs dry conditions

### Planting

• Can grow from stem cuttings in fall

• Can grow in late winter or early spring with potted plants

• Plant 2 to 3 feet apart in staggered rows 2 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2CYEu97)

• Mississippi Aquatic Plants (jcho.masgc.org)

## Scientific name: Iva frutescens

Common name: Marsh elder

USDA plant symbol: IVFR

### Naturally occurs in

• Upper borders of irregularly flooded salt and

 brackish marshes

### Description

• Deciduous shrub

• Grows up to 12 feet tall but usually about 6 feet tall

• Fleshy, egg-shaped leaves grow up to 6 inches long and

 2 inches wide

• Often confused with Baccharis halimifolia (eastern baccharis), but marsh elder has opposite leaves, while eastern baccharis has alternate leaves

### Environmental tolerances

• Soils: tolerates a wide range of soils from fine to coarse

• pH range: 5.0 to 5.7

• Salinity: 0 to 15 ppt

• Elevation: high marsh

• Flooding: needs dry soils

### Planting

• Grow from seed, propagate from bare root, or

 transplant from containers

• Not flood-tolerant, so plant on the very upper edge

 of the marsh

• Plant at least 6 feet apart

• Requires full sun

• Plant in early to mid-spring after last frost

### Resources

• USDA Plants Database (https://bit.ly/2WPOAk3)

• Chesapeake Bay Native Plant Center

 (https://bit.ly/2KbcG7G)

## Scientific name: Myrica cerifera

Common name: Wax myrtle

USDA plants symbol: MOCE2

### Naturally occurs in

• Upper edges of tidal salt, brackish, and fresh marshes

• Irregularly flooded tidal and nontidal swamps

### Description

• Evergreen shrub or tree

• Grows up to 36 feet tall but usually 10 to 15 feet tall

• Smooth, grayish-green bark

• Leaves are oblong and grow up to 3.75 inches long and

 1 inch wide

### Environmental tolerances

• Soils: tolerates a wide range from fine to coarse

• pH range: 5.0 to 7.2

• Salinity: 0 to 10 ppt

• Elevation: high marsh

• Flooding: tolerant of both drought and flooding

 once established

### Planting

• Grow from seed, propagate from bare root, or

 transplant from containers

• Plant in the upper edge of the marsh

• Plant in late winter to early spring

• Space about 10 feet apart

### Resources

• USDA Plants Database (https://bit.ly/2VnWQaN)

• Field Guide to Coastal Wetland Plants of the Southeastern United States (Tiner, 1993)

• Chesapeake Bay Native Plants Center

 (https://bit.ly/2OQcBVE)

## Scientific name: Sagittaria lancifolia

Common name: Bulltongue arrowhead

USDA plant symbol: SALA

### Naturally occurs in

• Fresh wetlands

• Ponds and ditches

### Description

• Grows up to 3 feet tall

• Leaves are elongate, oval- to lance-shaped

• Leaves are 8 to 24 inches long

• White flowers emerge March to October

### Environmental tolerances

• Soils: tolerant of a wide range from fine to coarse

• pH range: 6.0 to 7.2

• Salinity: 0 to 5 ppt

• Elevation: low marsh

• Flooding: can tolerate up to 12 inches of consistent flooding

### Planting

• Can grow from seed or divided clumps, but transplanting from corms is preferred

• If transplanting, space 10 to 12 inches apart

• Prefers full sun

• Best if corms are planted when plants are dormant in late fall to early spring

### Resources

• USDA Plants Database (https://bit.ly/2WMKdX9)

• Mississippi Aquatic Plants (jcho.masgc.org)

• Florida Native Plant Society (https://bit.ly/2uMWRJA)

• University of Florida IFAS Extension

 (https://bit.ly/2K9DWn6)

• Selected Plants of Grand Bay National Estuarine Research Reserve and Grand Bay National Wildlife Refuge

 (https://bit.ly/2IlydIn)

Publication 3356 (POD-06-19)

MASGP-19-030

By Sara Martin, Extension Associate, and Eric Sparks, PhD, Assistant Extension Professor, Coastal Research & Extension Center.

Copyright 2019 by Mississippi State University. All rights reserved. This publication may be copied and distributed without alteration for nonprofit educational purposes provided that credit is given to the Mississippi State University Extension Service.

Produced by Agricultural Communications.

Mississippi State University is an equal opportunity institution. Discrimination in university employment, programs, or activities based on race, color, ethnicity, sex, pregnancy, religion, national origin, disability, age, sexual orientation, genetic information, status as a U.S. veteran, or any other status protected by applicable law is prohibited. Questions about equal opportunity programs or compliance should be directed to the Office of Compliance and Integrity, 56 Morgan Avenue, P.O. 6044, Mississippi State, MS 39762, (662) 325-5839.

Extension Service of Mississippi State University, cooperating with U.S. Department of Agriculture. Published in furtherance of Acts of Congress, May 8 and June 30, 1914. GARY B. JACKSON, Director