

A photograph of a coastal marsh restoration site. The foreground is a sandy area with several small, shallow pools of water. In the background, there is a larger body of water, possibly a pond or a bay, surrounded by tall, dry grasses and reeds. The overall scene is a natural, somewhat desolate landscape.

# Top Ten Plants for Coastal and Marsh Restoration Projects

Sara Meissner  
Coastal Transplants



# Where to start?




Consider your site characteristics:



Salinity (water and aerosols)



Topography (frequency of inundation)



## Choosing your plants

Begin with the “builders”

Then add diversity

# Dunes and beaches



- Above high tide line
- Freshwater from rain above
- Saltwater from below
- Strong winds and aerosols
- Shifting sands
- Storm overwash





# Sea Oats

## *Uniola paniculata*

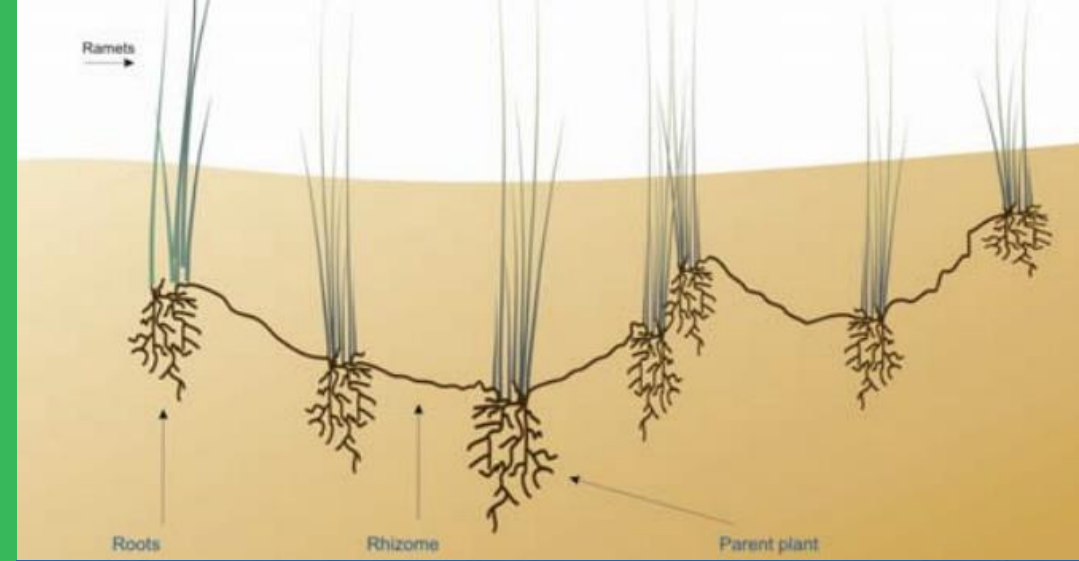
- Dunes, sand flats, interdune swales
- Deep taproots and expansive rhizome systems bind sand
- Tolerant of salt aerosols and drought conditions
- One of the best plants for dune stabilization
- Attracts birds and rodents, provides cover



# Beach Grass

## *Ammophila breviligulata*

- Dunes
- Horizontal and vertical roots and rhizomes, up to 20ft
- Tolerant of sand burial, salt aerosols, drought, saltwater
- Buried stems extend upwards with roots
- Attracts birds and rodents







# Bitter Panic Grass

## *Panicum amarum*

- Dunes, sandy shores
- Clumping structure, spreads by rhizomes
- Tolerant of salt aerosols, some saltwater inundation, and drought conditions
- Attracts birds, butterflies, and rodents



# Seacoast Marsh Elder

## *Iva imbricata*



- Dunes, upper beach, island-end flats
- Deep stems re-root at the nodes as sand accumulates
- Very tolerant of salt aerosols and brief inundation
- Thick leaves provide wind protection and cover
- Low and wide, up to 10ft
- Attracts birds



# Consider adding:

- Bushy Seaside Tansy, Oxeye (*Borrichia frutescens*)
  - Robust bushy herb with rhizomes, flowers attract birds and pollinators
  - Low dunes, salt and brackish marshes
- Seabeach Evening Primrose (*Oenothera humifusa*)
  - Low, sprawling herb, flowers attract pollinators
  - Coastal sand dunes





# Swales, Maritime Meadows, and Salt Pannes



- Behind and between dunes
- Low and flat, puddling
- Variable saltwater inundation
- Rain runoff from dunes
- Semi-protected from winds
- Storm overwash





# Saltmeadow Cordgrass

## *Spartina patens*

- Dunes, sand flats, overwash flats, upper edges of tidal marshes, maritime wet grasslands- versatile!
- Dense fibrous roots and rhizomes
- Tolerant of salt aerosols, prefers fresher water
- Very dense, thin stems
- Spreads by runners
- Attracts birds, provides cover





# Carolina Fimbry

## *Fimbristylis caroliniana*

- Brackish and alkaline sands of marsh edges and dune swales
- Dense, fibrous roots and thickly clumped stems
- Tolerant of salt aerosols and occasional saltwater inundation
- High germination from seed means fast spread possible
- Provides cover



# Shoreline Sea-Purslane

*Sesuvium*

*portulacastrum*

- Island end flats, beaches
- Perennial, rosettes and trailing, rooting at nodes
- Tolerant of salt aerosols and occasional saltwater inundation
- Accumulates sand around thick stems and leaves
- Small flowers attract pollinators







# Pickleweed, Woody Saltwort, Chickenclaws *Salicornia ambigua*

- Coastal salt pannes, salt marshes
- Perennial, trailing, rooting at nodes
- Tolerant of salt aerosols and periodic saltwater inundation
- Accumulates sand around the stems, creates mats





# Consider adding:

- Saltgrass (*Distichlis spicata*)
  - Low, trailing grass, deep rhizomes
  - Hypersaline flats, marshes, shores
- Seashore Dropseed (*Sporobolus virginicus*)
  - Low, trailing grass, deep rhizomes
  - Salt marshes, tidal mud flats, low dunes
- Annual Glasswort, Pickleweed (*Salicornia virginica*)
  - Annual, upright, attractive fall color
  - Salt pannes
- Sea Lavender (*Limonium carolinianum*)
  - Flowers add color, attract butterflies
  - Hypersaline flats, tidal marshes

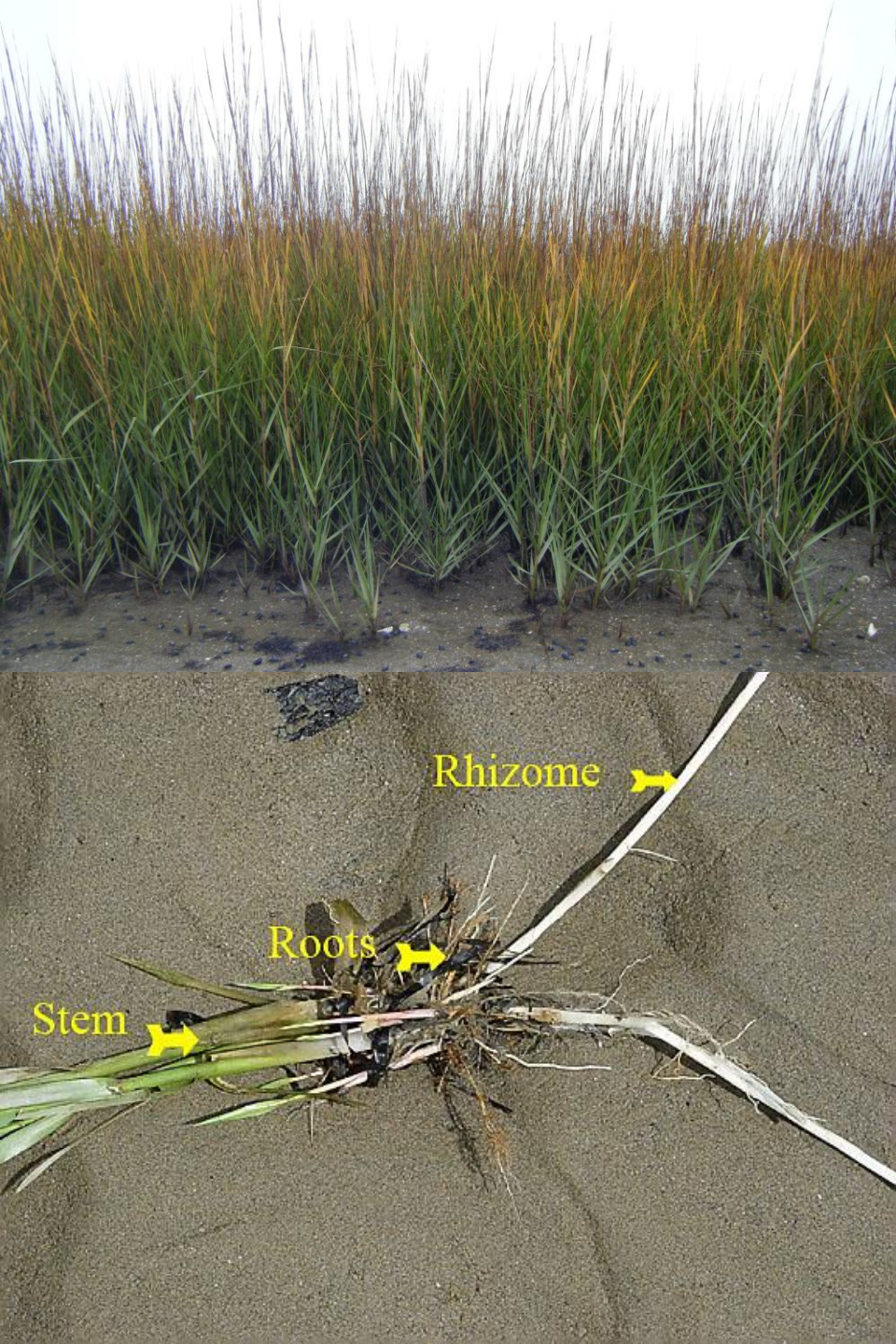


# Tidal Marshes

- Intertidal zone
- Regular inundation
- Salt and brackish water
- Low marsh protects high marsh and shore from wind and wave energy







# Smooth Cordgrass

## *Spartina alterniflora*

- Tidal salt marshes, salt to brackish
- Dense rhizomes and fibrous roots
- Tolerant of salt aerosols and near-constant saltwater inundation
- Tall, dense stems help dissipate wave energy and protect shorelines
- Annual cycle of nutrient deposition from dead biomass
- Attracts birds, provides cover



# Black Needle Rush

## *Juncus roemerianus*

- Coastal tidal marshes
- Dense rhizomes form thick mats
- Prefers brackish areas, or slightly higher elevations in less salty areas
- Tall, dense stems help dissipate wave energy and protect shorelines
- Provides cover to small animals



**Black needlerush**  
*Juncus roemerianus*  
Photo by Ann Murray  
© 2000 University of Florida



# Consider adding:

- Saltmarsh Bulrush (*Bolboschoenus robustus*)
  - Upright sedge with tubers, early colonizer of mud flats, interesting foliage, attracts wildlife
  - Brackish marshes, mud flats
- Perennial Saltmarsh Aster (*Symphyotrichum tenuifolium*)
  - Slender flowering perennial, very attractive to pollinators
  - Brackish marshes
- Southern Seaside Goldenrod (*Solidago mexicana*)
  - Bright flowering perennial, very attractive to pollinators
  - Coastal dunes, dune slacks, maritime wet grasslands, tidal marshes







# Consider adding:

- Giant Cordgrass (*Spartina cynosuroides*)
  - Tall, robust grass of upper tidal marshes
  - Could be used to replace *Phragmites australis*, similar habitat and form
  - Brackish and freshwater tidal marshes
- Silverling, Groundsel Bush (*Baccharis halimifolia*)
  - Pale green shrub, attractive white and silver blooms, birds and pollinators
  - Fresh and brackish marshes, marsh edges, disturbed areas
- Bigleaf Marsh Elder (*Iva frutescens*)
  - Succulent shrub, provides cover to small animals
  - Brackish marshes, marsh edges, back sides of barrier islands



A close-up photograph of a sandy beach with several clumps of succulent plants. The plants have thick, fleshy, cylindrical stems in shades of red, orange, and green. They are growing in the sand, with some stems reaching upwards and others lying flat. The background is a bright, slightly out-of-focus sandy area.

Questions?