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**Jamie L. Whitten Plant Materials Center
Coffeerville, Mississippi**

**Ecological Sciences
Jackson, Mississippi**

**Planting Guide for Establishing Coastal Vegetation
on the Mississippi Gulf Coast**



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INTRODUCTION

The Planting Guide for Coastal Vegetation on the Mississippi Gulf Coast, prepared by the USDA-Natural Resources Conservation Service (NRCS) Jamie L. Whitten Plant Materials Center, Coffeerville, MS and Ecological Sciences, Jackson, MS, is a publication written to provide guidance on how to stabilize coastal sand dunes and protect shoreline areas from erosion along the Mississippi Gulf Coast using native plant materials. This document contains individual plant guides on various native coastal plant species found on the Mississippi Gulf Coast. Each plant guide contains a brief plant description; method of establishment; recommended plant varieties or sources; and cultural specifications for establishment and management. Appendices have been included to provide information on how to properly collect and propagate native coastal plant species from their natural habitats, and provide a list of local plant vendors that grow and sell many coastal plant species.

The Planting Guide for Establishing Coastal Vegetation on the Mississippi Gulf Coast is divided into five sections – ***General Information for Planting Coastal Vegetation, Recommended Cultivars & Releases, Maintenance, Propagation of Coastal Vegetation and Vendors List of USDA-NRCS Coastal Vegetation Releases.*** Plant materials chosen for this planting guide have been tested for adaptation and performance by the NRCS Plant Materials Program in Mississippi, and from plant performance testing in adjoining states where soils and climate are similar to Mississippi's.

Specific nomenclature follows the PLANTS database, which is the accepted authority for NRCS use. Several scientific names may be different than those with which the reader is familiar.

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Information provided in this publication constitutes no endorsement or guarantee by the USDA or NRCS of any plant material, supply or equipment listed. While an effort has been made to provide an accurate listing of adapted plants and cultural specifications, omissions or other errors may occur and, therefore, other available sources of information should be consulted.

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SECTION I: GENERAL INFORMATION FOR PLANTING COASTAL VEGETATION



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Sand Dune Formation and Structure

Sand dunes are natural occurring structures that are formed by sand being carried by the wind from the ocean and depositing as parallel ridges that form perpendicular to prevailing winds. These natural structures provide protection during storm events by reducing wave energy and velocity.

Many native coastal plant species play a major role in the formation of sand dunes and also protect shoreline areas from erosion. These plants often produce foliage and deep root systems that assist in the formation of a sand dune over time. The foliage of these species reduces wind velocity and filters sand from the wind, and their deep root systems help to anchor dunes to their foundation. For example, as filtered sand piles up around dune plant species, new roots develop on the buried stems and new shoots emerge from the sand's surface. The end result is a dense mat of vegetation which anchors the dune below its surface and traps more windblown sand.

There are generally three zones of vegetation that form on coastal dunes. Each of these zones is exposed to different levels of soil salinity which determine the types of plant species that occur within each zone. The frontal dune zone, which occurs closest to the ocean, contains several grasses and other herbaceous plants that are able to tolerate high exposures to salt spray. The back dune zone is located behind the frontal zone and supports trees, shrubs, and vines as well as grasses and other herbaceous plants. These species generally have a very low salt tolerance. Farthest from the ocean is the forest zone, which supports pines and hardwoods.

Choosing Plant Materials

When choosing plant materials, if possible use releases developed by the USDA-NRCS Plant Materials Program. These plant releases have been tested and found to successfully establish along the Mississippi Gulf Coast. If USDA-NRCS plant releases are not available, generally commercial growers can be found that produce the desired species you need. However, it should be noted that these generic selections may not be as well adapted to conditions along the Mississippi Gulf Coast as recommended USDA-NRCS plant releases. For a list of commercial producers growing coastal vegetation please see Appendix I. For a complete list of plant vendors please consult the **2006 Seed & Plant Vendors Guide of Conservation Plants for the Mid & Southeast U.S.** at website address below:

<http://www.ms.nrcs.usda.gov/technical/2006SeedandPlanVendorsof.pdf>

Site Preparation

Generally, little site preparation is required before coastal vegetation is planted. Sand fences should be installed prior to planting coastal vegetation and trash and debris removal may be required to prevent planting difficulties.

Time of Planting

Planting can generally be conducted in late winter through early summer. Planting during this time is encouraged, because the plants will generally be well rooted and established before hot weather. Avoid planting during the dry season, because heat stress and drought loss will occur when bare-root stock is planted. Instead, plant when the risks of loss by sandblasting, moisture stress, and erosion are lowest.

Planting Rate and Depth

When available, seed should be sown according to cultural specifications at recommended depths. Stolons or rhizomes should be planted 4 to 12 inches deep, or deep enough to have adequate soil moisture at the time of planting. Cut stems should be planted at a 45-degree angle, deep enough to bury several growth nodes.

Use a tree dibble or hand/foot shovel to plant vegetative material. Large, flat sites can be planted more economically using a tractor drawn transplanter with planting plows that create furrows 8 to 15 inches deep.

Spacing

Vegetation must be planted to a width of at least 10 feet. Wider areas may be required on severely eroded sites. Plant spacing ranges from 1 to 3 feet, but are typically 18 inches

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for 1 to 4 inch potted stock or bare root plugs and stolons of the same size. Planted rows should be staggered and placed two to three feet apart.

Fertilization

Initial fertilization is best done at planting with a complete slow release fertilizer, such as *Osmocote[®] 14-14-14, placed under the plant at a rate of 1.5 grams per plant. Initial fertilization may also be provided with 200 to 300 pounds of mineral 10-10-10 per acre broadcast six weeks after planting.

**Other commercial fertilizers of the same analysis and with a slow release formulation may also be used.*

In addition, the establishment of bareroot and stem cuttings can be assisted by using fertilizer combined with a water absorbing granules called hydrogel. This material is extremely water absorbent and has the ability to absorb hundreds of times its weight in water. Hydrated hydrogel combined with fertilizer can be placed in the planting hole just prior to plant placement. Absorbed water and fertilizer is then slowly released back into the root zone for use by the plant.

Maintenance

Generally little maintenance is required after coastal plantings are preformed. It is important to fertilize plantings during the first two years after plantings. This enables plantings to become established more readily. Foot traffic should also be minimized on newly planted areas, and debris should be removed on a regular basis.

SECTION II: RECOMMENDED CULTIVARS & RELEASES

The following plant species are releases from the USDA-NRCS Plant Materials Program. These plant species have been studied and found to have the ability to successfully establish along the Mississippi Gulf Coast.

Frontal Dune/Shoreline Stabilization Species

1) ‘Vermilion’ Smooth cordgrass (*Spartina alterniflora*)

For more information on ‘Vermilion’ Smooth Cordgrass consult the Plant Fact Sheet at the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/lapmcbrspalverm.pdf>

Smooth cordgrass is an herbaceous, native, warm-season, perennial grass that forms dense colonies along shorelines and intertidal flats in coastal wetlands. This species is an important plant in maintaining the stability of brackish to saline marshes and is critical to barrier island and wetland restoration. It is recommended for shoreline erosion control and stabilization of canal banks, levees, and other soil-water interfaces. Smooth cordgrass is also an effective soil stabilizer used on interior tidal mudflats, dredge fill sites, and other areas of loose and unconsolidated soils associated with marsh restoration.

Planting date: February to June

Method of establishment: Transplants using 3 live stems placed bare-root or containerized plants. Use a dibble bar or similar tool.

Material Size: ≥ 12 inches in length.

Planting depth: Insert plant stems to a depth of 6 inches, pack soil firmly around the plant.

Plant spacing: 2-10 feet apart. Spacing will depend on how quickly complete coverage is needed.

Note:

Individual fertility requirements: Place one ounce of slow release fertilizer in each hole as material is planted, or apply 200 to 300 pounds of 10-10-10/acre 3 to 4 weeks after planting. To maintain and/or develop the stand, apply 200 to 300 pounds of 10-10-10 (or equivalent)/acre annually June 1 to June 15 and repeat again between August 1 to August 15.

Care and treatment of vegetative stock: Keep vegetative stock moist before and after transplanting to minimize planting shock. If the plants have been growing in or irrigated with fresh water or with water of a much lower salinity than the purposed planting site, they should be hardened to near the salinity of the planting site. Consult with supplier to determine how they were grown.

2) ‘Brazoria’ Seashore paspalum (*Paspalum vaginatum*)

For more information on ‘Brazoria’ Seashore paspalum consult the Plant Fact sheet at the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/lapmcbrrpavabraz.pdf>

Seashore paspalum is a native, warm season, creeping perennial grass. This species is an effective pioneering species that can be established on shorelines, dunes, canal banks, mudflats, dredge materials, and other bare and ephemeral soil deposits. ‘Brazoria’ spreads rapidly and can form dense stands within two growing seasons from planting, and because of this it is often used in commercial and residential landscaping. This plant is also considered an excellent wildlife food and habitat and is commonly used by livestock grazing in brackish to saline soil areas.

Plant date: April to May

Method of establishment: Transplant by plugs or container grown plants.

Material size: Plugs should be 3 inches in diameter with root ball and soil attached.

Planting depth: Plant at a depth to ensure root ball is completely covered.

Plant spacing: Spacing is dependent on critical erosion potential and coverage desired.

Note:

This species flourishes when water levels fluctuate between 2 inches above the surface to 6 inches below the soil surface. However, it can withstand more than 2 inches of water above the soil surface during the winter season

3) ‘Flageo’ or ‘Gulfcoast’ Marshhay cordgrass (*Spartina patens*)

For more information on ‘Flageo’ or ‘Gulfcoast’ Marshhay cordgrass consult the Plant Fact Sheets at the links below:

<http://www.plant-materials.nrcs.usda.gov/pubs/gapmcbrrsppa.pdf>

<http://www.plant-materials.nrcs.usda.gov/pubs/lapmcbrrspspgulf.pdf>

<http://www.plant-materials.nrcs.usda.gov/pubs/flpmcpgsppa.pdf>

Although typically associated with tidal salt marshes, saltmeadow cordgrass also naturally occurs in the secondary and back dune areas. Predominately inhabiting inter-

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dune troughs and low blow-out areas, it is dominate in these micro-sites since most other sand dune species cannot tolerate wet to saturated soil conditions. The trailing rhizomes of saltmeadow cordgrass are slender, but form dense mats near the surface. It is vegetatively established on normal sites using freshly harvested stems (culms) or containerized plants on severe locations.

Planting date: May 1 to June 15

Method of establishment: Transplant using 3 to 5 live stems placed bare-root or containerized; can be hand placed or planted with vegetable planter.

Material size: \geq 12 inches.

Planting depth: Plant 2 inches below the nursery grown depth.

Plant spacing: Use 18 to 36 inch spacing, depending on the severity of the planting site.

Note: Utilize this species in low elevation sand dunes which are frequently moist or inundated.

Frontal Dune Species

4) ‘Caminada’ Seoats (*Uniola paniculata*)

For more information on ‘Caminada’ Seoats consult the Plant Fact Sheet at the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/lapmcbrunpacami.pdf>

Sea oats is a native perennial, erect, rhizomatous, and colonizing grass that produces an extensive underground root system. This species is the most important plant on frontal dune zones. It flourishes best where sand is drifting and accumulating. It persists as a perennial cover after the sand has been stilled but dies back to the ground over the winter.

Planting date: March 1 to April 15 (late winter to early spring)

Method of establishment: Potted plants and bare root stock are available commercially and form vigorous stands. Hand planted.

Material size: ≥ 30-inch stem height.

Planting Depth: Plant 2 inches below the nursery grown depth.

Plant Spacing: Use a 18 to 36 inch row spacing with plants placed 18 inches apart within a row.

Note: Very little to no seed is produced by most seedheads; what little is produced is readily eaten by birds. Only rarely is reproduction by natural germination of seed observed.

Individual fertilizer requirements: Place one ounce of slow release fertilizer in each hole as material is planted, or apply 200 to 300 pounds of 10-10-10/acre 3 to 4 weeks after planting. To maintain and/or develop the stand, apply 200 to 300 pounds of 10-10-10 (or equivalent)/acre annually June 1 to June 15 and repeat again between August 1 to August 15.

5) ‘Northpa’ or ‘Fourchon’ source Bitter panicum (*Panicum amarum*)

For more information on ‘Northpa’ or ‘Fourchon’ source Bitter panicum consult Plant Fact Sheets at the links below:

<http://www.plant-materials.nrcs.usda.gov/pubs/lapmcbrpaam2four.pdf>

<http://www.plant-materials.nrcs.usda.gov/temphomepagefiles/NorthpaSouthpaBR.pdf>

<http://www.plant-materials.nrcs.usda.gov/pubs/flpmcpgpaam2.pdf>

Bitter panicum is a perennial warm-season grass with a prostrate growth habit that spreads slowly from short, strong rhizomes initially forming open clumps. Over time

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these clumps can fuse to form a dense mat of vegetation. Since this grass produces little viable seed it must be planted vegetatively.

Planting date: November 1 to March 1 or June 1 to September 1.

Method of establishment: Potted and bare root plants are available commercially. Freshly dug root tillers (sprigs) or rooted stem cuttings can also be obtained from vigorous stands.

Material size: \geq 6 inch stem length with a minimum 2 nodes.

Planting depth: Place sprigs at a 45 degree angle in an 8-10 inch hole or slit leaving the top 6-10 inches of stem exposed. Plant tillers so the roots are well distributed in moist soil and the crowns are covered with 1/2 to 1 inch soil. Pack soil firmly.

Plant spacing: Tillers (sprigs) should be planted in rows 6 to 8 feet apart and spaced about 18 inches apart in the rows

Note:

Fertilizer and management requirement: Fertilize winter plantings at planting time. Apply 400 pounds of 10-10-10/acre or equivalent, plus minor elements, in the spring. Repeat this fertilization in mid to late summer. For summer plantings, place one ounce of slow release fertilizer in each hole as material is planted, or apply 200 to 300 lb/acre of 10-10-10 3 to 4 weeks after planting. Apply the same rate and kind June 1 through 15 and repeat again between August 1 through 15, annually, until the stand fills in the spacing. Minimize foot traffic and remove debris from planting.

6) Atlantic' Coastal panicgrass (*Panicum amarum* var. *amarulum*)

For more information on 'Atlantic' Coastal panicgrass consult the Plant Fact Sheet at the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/njpmcbrpaam2.pdf>

Coastal panicgrass is a warm season bunch-like grass that is a post stabilization species thriving from the crest of the frontal dune to inland sites. It is the only dune stabilization species which has been directly seeded on to the sand dunes successfully. Potted plants and stem divisions can also be successfully established on these severe sites. The annual foliage emerges from deep fibrous perennial root system with short lateral rhizomes. The seed is eagerly sought by doves and quail. Volunteer seedlings occasionally occur when the soil is undisturbed.

Planting date: November 1 to March 1 and/or June 1 to September 1

Method of establishment: Transplant using single bare-root or containerized seedling or division; 12 – 19 inches tall, planted by hand. By seed, it can be hand broadcast/incorporated or planted using a garden seeder (single row, push), mechanically operated drill or drop seeder.

Material size: Seed: 12-19 inches tall seedlings or rooted divisions.

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Planting depth: Seed at 1 to 3 inches depth. Plant tillers so roots are well distributed in moist soil and the crowns are covered with ½ to 1 inch soil. Pack soil

Plant spacing and seeding rates: Tillers (sprigs) should be planted in rows 6 to 8 feet apart and spaced about 18 inches apart in rows. About 5,000 tillers per acre are required for this type of planting. With seed, use 10 to 15 lb/acre drilled or 20 lb/acre broadcast.

Note:

Individual fertilizer requirements: Fertilize winter plantings at planting time. Apply 400 pounds of 10-10-10/acre or equivalent, plus minor elements, in the spring. Repeat this fertilization in mid to late summer. For summer plantings, place one ounce of slow release fertilizer in each hole as material is planted, or apply 200 to 300 lb/acre of 10-10-10 3 to 4 weeks after planting. Apply the same rate and kind June 1 through 15 and repeat again between August 1 through 15, annually, until the stand fills in the spacing. Minimize foot traffic and remove debris from planting.

Back Dune Species

7) 'Timbalier' Gulf bluestem (*Schizachyrium maritimum*)

Gulf bluestem is a native, warm season, perennial grass which spreads by seed and short rhizomes. Found in scattered open clumps in the back dunes; it rarely forms a solid stand, but is found mixed in with other species such as partridge pea, beach heather, and beach pea. Gulf bluestem also provides habitat for small mammals, shorebirds, and migratory birds.

Planting date: March to May.

Method of establishment: Transplant single stemmed bare-root or potted plants hand place or planted with vegetable planter.

Material size: \geq 12-24 inch stem.

Planting Depth: Place root ball 2 inches below the nursery grown depth

Plant spacing: Container grown or bareroot plants should be planted on 2-5 foot centers on the primary dune ridge and back sides and the more stable dune and swale areas behind the primary dune. May be interplanted with coastal panicgrass, saltmeadow cordgrass, seaside goldenrod, and partridge pea to enhance habitat diversity and conservation effectiveness.

8) 'Flora Sun' Beach sunflower (*Helianthus debilis* subsp. *debilis*)

For more information on 'Flora Sun' Beach sunflower consult the Plant Fact Sheet at the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/flpmcbrheded.pdf>

Beach sunflower is a low-growing, native, herbaceous, perennial forb. This plant spreads by above the ground stolon-like runners and is used for stabilizing the back dune areas of coastal sand dunes, providing wind erosion protection, and beautifying beaches. Its seeds are also a valuable wildlife food source.

Planting date: April to May

Method of establishment: Transplant by hand rooted vegetative cuttings.

Material size: \geq 12 inches.

Planting depth: Plant rootmass of transplants $\frac{1}{2}$ to 1 inch below the prevailing soil surface

Plant spacing: Transplants should be placed in offset rows using a 12 to 30 inch spacing.

Note: Although beach sunflower can be started from seed, there is no guarantee that the resulting plants will be true to type, since the various subspecies of *Helianthus debilis* can cross-pollinate.

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In addition, due to the attractiveness of the bright yellow flowers and deep green leaves, some protection from visitors may be necessary to protect the plant.

9) Lark Selection Partridge pea (*Chamaecrista fasciculata*)

For more information on ‘Lark Selection’ Partridge pea consult the link below:

<http://www.plant-materials.nrcs.usda.gov/pubs/mspmcpgchfa2lark.pdf>

Partridge pea is a native, warm-season annual legume. This plant reseeds itself for 1 to 3 years, but will gradually disappear without maintenance. Soil disturbance is necessary to maintain this species. This species is commonly found on back dunes and its seed are particularly important to wildlife because they remain in a sound condition throughout the winter into early spring.

Planting date: February-May, do not plant after May 15.

Method of establishment: seed.

Material size: N/A

Planting depth: N/A

Planting rate: Broadcast 6 lb/acre of scarified seed. Broadcast 4 lb/acre when planting in a mixture with other seeded beach plants.

Forest Zone

Trees and Shrubs on Back Dunes

Over time as sand dunes become stabilized, shrubs and trees begin to colonize back dune areas. On the barrier islands of the Gulf coast, forests commonly occur behind dune zones. These forests are often dominated by trees and shrub species such as, slash pine, yaupon holly, saw palmetto, and sand live oak. The major function of tree and shrub vegetation on sand dunes is permanent structural stabilization. All trees and shrubs of the sand dunes produce viable seed, but intentional establishment using bare-rooted or potted seedlings is the method of choice. Although the USDA-NRCS Plant Materials Program has not released any coastal tree or shrub cultivars, many commercial growers readily supply coastal shrub and tree species. For a complete list of plant vendors supplying needed species please consult the **Seed & Plant Vendors Guide of Conservation Plants for the Mid & Southeast U.S.** at website address below:

<http://www.ms.nrcs.usda.gov/technical/2006SeedandPlanVendorsof.pdf>

General Guidelines for Planting Trees and Shrubs

Planting date: March 15 to April 15

Method of establishment: Transplant 1 or 2 bare-root seedling per site or containerized transplants.

Material size: \geq 12 inches tall.

Planting depth: Plant 2 inches below the nursery grown depth.

Plant spacing: Space 4 to 6 feet apart; off-set (stagger) rows for maximum protection.

Note: To ensure establishment (first 2 years) all competing vegetation must be removed from within 2 feet of each plant; it is important not to fertilize surrounding vegetation which will potentially out-compete the tree or shrub.

SECTION III: MAINTENANCE

Sand Fencing

A sand fence is an artificial barrier of evenly spaced wood slats or approved fabric erected perpendicular to the prevailing wind and supported by posts. It reduces wind velocity at the ground surface and traps blowing sand. These fences are used primarily to build frontal ocean dunes to control erosion and flooding from wave overwash. Use of sand fences is more effective than using vegetation alone, and although fencing may be more expensive than building dunes vegetatively, it is less expensive than the use of machines.

Materials needed:

Fencing:

Standard 4 feet slatted wood sand fencing; wood must be decay free
Four wire ties (≥ 12 ga.) must be used to secure fencing to each post

Posts:

Wooden posts are used for fence support, and may be made of pressure-treated yellow pine or untreated black locust, red cedar, white cedar, or other wood of equal life and strength. They should be standard fence posts at least 7 feet long, with a minimum diameter of 3 inches, and should be set at least 3 feet deep into the sand, no further than 10 feet apart. Four wire ties should be used to fasten the fence to the wooden posts. Weave the fence between the posts so that every other post will have fencing on the ocean side of the posts. Tie wires should be no smaller than 12-gauge galvanized wire. Wooden posts must be $\geq 6 \frac{1}{2}$ feet long, with a minimum diameter of 3 inches; typical length ranges from 7 to 8 feet.

Fence Positioning:

Erect sand fences at a minimum of 100 feet (horizontal distance) from the mean high tide line in two parallel lines 30 feet apart. The fences should be parallel to the water line and at a right angle to the prevailing winds.

Number of Fence Rows:

Two parallel rows spaced 30 to 40 feet apart, are ideal; but single rows with 30 feet. Perpendicular spurs, spaced 40 feet apart are also acceptable if space is a major limiting factor.

Fence Replacement:

Sand will typically fill fencing to $\frac{3}{4}$ of its total height at a maximum; upon reaching maximum fence capacity, additional lines of fence can be added until maximum planned dune height is reached; replace damaged fencing and posts within one month of storm damage to maintain a contiguous dune line.

Planting parallel rows of vegetation on either side of fences is usually more effective than either vegetation or fencing techniques alone.

When complementing fencing with vegetation, do not plant closer than ten feet and no further than 15 feet from the fence lines. Vegetative strips should be about 20 feet wide.

Mechanical Excavation

With the use of various earth moving machines temporary, excavated sand dunes are quickly created.

Since time is required for settling and cohesion to occur, such dunes are often short lived and only provide minimal protection to the public and private resources behind them.

This method is often useful in the repair of storm damaged sand dunes during the fall and winter months. Any blow-out areas can be quickly filled.

Front-end loaders of all sizes can be used. Various grading machines are also useful.

Pumped sand from off shore dredging can be shaped and positioned with machinery.

Fertilizer**Best Time to Fertilize:**

May through July; no sooner than 30 days after planting.
Rate = < 50 lb/acre N, < 25 lbs of P and K/acre.

Frequency:

Apply N for the first two years after planting, then as needed to maintain stem density and plant health.

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Single or split applications are acceptable if not applied before May 1 or after July 30. Split applications must be at least 30 days apart.

It is only necessary to apply P and K bi-annually.

Recommended Formulations:

10-10-10, 20-10-10, 15-10-10, etc. are acceptable as long as the maximum rates per nutrient are not exceeded.

Time release fertilizers are encouraged that will provide the target amounts of primary nutrients per acre.

Notes: Only apply fertilizer within the drip line of shrubs and trees. Not following this rule will result in excessive herbaceous growth, which will out compete newly established trees and shrubs.

Apply using broadcasting machinery.

Replanting

Like a chain, a dune ecosystem is no stronger than its weakest link. Uniform, unbroken dune lines are essential to the protection a system can provide.

Uncontrollable events (i.e., storms, construction, etc.) may damage sand dunes. If such damage occurs between October to April, replant within a month. If the damage occurs from May to September, utilize the outlined sand fencing or excavation procedures, and then plant during the recommended establishment period.

**APPENDIX I
COLLECTING COASTAL PLANT MATERIALS FOR
PROPAGATION**

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This appendix was written to provide basic information on the types of plant materials that can be collected from native coast plant species when interested in propagating local ecotypes for the Mississippi Gulf Coast, or when USDA-NRCS Plant Materials Program releases are not available. The amount of information available on propagating many coastal plant species is very limited. Thus, this information was provided to serve only as a benchmark when considering collecting vegetative materials from local plant communities.

Note: Permission from the proper government authorities should be granted before collecting coastal plant materials from public lands.

PROPAGATION BY SEED ONLY

Sea Ox-eye Daisy (*Borrchia frutescens*)

Propagation material: seeds prolifically. Does not transplant easily (Craig 1991).

Partridge pea (*Chamaecrista spp.*)

Propagation material: Seed

Collect seed from legumes before they shatter (Craig 1991).

Slash pine (*Pinus elliottii*)

Propagation material: seeds, average tree produces cones at 10-15 years of age.

Sand live oak (*Quercus virginiana*)

Propagation material: seeds

Sand live oak can be directed seeded into dunes. Collect acorns in autumn and plant them as soon as possible at a depth of 1 ½ inches. The seed should germinate rapidly (Craig 1991).

PROPAGATION BY SEED OR VEGETATIVE METHODS

Beach sunflower (*Helianthus debilis*)

Propagation Material: cuttings, seed

Cuttings can be taken from runners and seeds can be collected (Craig 1991).

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Blanket flower (*Gaillardia pulchella*)

Propagation Material: transplants, seeds

It is best to propagate plant material by dividing clumps and transplanting them. Seed can also be collected locally in the fall and planted in the spring (Craig 1991).

Beach morning-glory (*Ipomoea imperati*)

Propagation Material: cuttings, seeds (Craig 1991)

Railroad vine (*Ipomoea pes-caprae*)

Propagation Material: cuttings, seed (1991)

Seeding is recommended, but plant material such as the runners can also be used. Seed should be soaked in warm water for several hours to germinate readily (Craig 1991).

Seacoast marshelder (*Iva imbricata*)

Propagation Material: transplants, softwood cuttings, seed

Cuttings can be taken from the uppermost 4 inches of non-branched terminal shoots. Shoots below this area can also be taken, however, these shoots will be much shorter. The rooting hormone, auxin, can be used for successfully rooting. Cuttings should be placed in a pinebark based substrate in flats and then placed under mist. Rooting of cuttings regularly will occur within 2 to 3 weeks (Thetford and Miller 2002).

Small first-year seedlings are easily transplanted in spring. Cuttings of ripened stems root readily. Seashore elder can also be seeded; collect and plant seed in fall (Craig 1991)

Yaupon holly (*Ilex vomitoria*)

Propagation Material: cuttings, seed

Propagation from seed is difficult. The seed take 2 years to germinate, and the plants must be cultivated another 2 years before they can be transplanted to the intended site. Cuttings of ripened wood are a better method, but root-inducing naphthalenacetic acid should be used (Craig 1991).

Southern waxmyrtle (*Morella cerifera*)

Propagation material: cuttings, seed

Propagate from cuttings of ripened wood in spring and summer, or by ground-layering. Seed, with the wax removed, can be planted in the fall (Craig 1991).

Coastal panicgrass (*Panicum amarum* var. *amarulum*)

Propagation material: seed

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Plant the seed 1 to 3 inches deep in dune sand, and mulch area for best results. Clumps of coastal panicgrass can also be dug, divided, and planted with good results during the summer rainy season (Craig 1991).

Propagation material: stolons

Coastal panicgrass produces a seed stalk in the fall. This seedstalk does not produce much seed; however, it contains several nodes. This structure can be used to produce rooted cuttings during the winter and then planted in the spring. Cuttings can be taken just after the seed is mature (late October – early November) and well before frost kills the top of the plants.

Greenhouse grown: Seedstalks can be cut into segments approximately 6 inches in length that contain two nodes. These cuttings can be treated with rooting hormone (Rootone[®] F or Hormodin[®] 1) and then placed in pots filled with sand with one node planted deep in the pot and the other node just above the soil surface. Potted plants can be grown in a greenhouse over the winter and then removed from the pots in March. Terra-Sorb[®] root gel can be applied to prevent drying out of the roots. Plants should then be planted immediately. An ounce of Osmocote[®] 10-10-10 fertilizer can also be placed in each planting hole.

No Greenhouse: The entire length of a seed stalk cutting can be buried in a trench one-inch deep. Although, this method does not have the same success rate as greenhouse grown cuttings, it provides some establishment without the need for a greenhouse. Another problem with this method is that stolons are easily uncovered by winds before stolons have an opportunity to root. This method is a great opportunity to utilize labor from volunteer groups.

Saw-palmetto (*Serenoa repens*)

Propagation material: seeds, transplants

Difficult to transplant, but small seedlings can be successfully transplanted if the plants are well maintained after replanting. If propagated from seed, they should germinate in about 6 weeks (Craig 1991).

Seashore dropseed (*Sporobolus virginicus*)

Propagation material: rhizomes, seeds Note: vegetative state can be confused with some forms of *Paspalum vaginatum* and *Distichlis spicata*.

Rhizome pieces are the preferred material for propagation because they root readily (Craig 1991).

Seaots (*Uniola paniculata*)

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Propagation material: seeds or transplants

Seoats can be established by digging and dividing native plants. Dig the plant as deeply as possible to get part of its rhizome. When replanting, set the stock at least a foot deep and pack it tightly.

Under natural conditions, seed germination is not high and seedling survival is low. Permission to collect seed should be received before collecting (Craig 1991).

PROPAGATION BY VEGETATIVE METHODS ONLY

Largeleaf pennywort (*Hydrocotyle bonariensis*)

Propagation Material: rhizomes

Propagate by digging and transplanting rhizomes (Craig 1991).

Prickly pear cactus (*Opuntia* spp.)

Propagation material: cuttings

Propagated by breaking or cutting off a joint, drying it for a few days, and placing the cut end in the soil (Craig 1991).

Bitter panicum (*Panicum amarum*)

Propagation material: freshly dug bare-root tillers, rooted stem cuttings, or unrooted stem cuttings

Bitter panicum generally produces few viable seed, but it is better adapted for transplanting than seoats. It can be propagated from a stem with part of the rhizome attached or from an 8 to 12 inch length of a rhizome without the above-ground part. Plant the rhizome 4 inches deep in early spring. Spacing should be no more than 6 feet. Another method of propagation is to snap off robust stems at ground level and plant them at a 45 degree angle, so that several nodes are buried (Craig 1991).

Planting date: Late fall for cuttings; later winter or early spring with potted plants; late spring (beginning of rainy season) with young tillers.

Shoreline paspalum (*Paspalum vaginatum*)

Propagation material: bare-root, plugs, cuttings.

Note: vegetative state can be confused with some forms of *Sporobolus virginicus* and *Distichlis spicata*.

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This grass can be propagated by transplanting runners or rhizomes (Craig 1991).

Seacoast bluestem (*Schizachyrium scoparium*)

Propagation material: rhizomes

Rhizomes will root readily (Craig 1991)

Sea purslane (*Sesuvium portulacastrum*)

Propagation Material: cuttings

Vegetative cuttings will root easily (Craig 1991).

Marshhay cordgrass (*Spartina patens*)

Propagation material: bare-root, seed, rooted stems

Seed can be used for propagation, but the percentage of viable seed varies greatly. For best results, use seed that is freshly harvested. Plantings of vegetative material in early spring can also be successful. For large plantings, bare-root plant stock is recommended, rather than seed. Stem rooted at the base, preferable with a section of rhizome attached, can be planted at a depth of 4 to 5 inches (Craig 1991).

APPENDIX II
VENDORS LIST OF USDA-NRCS COASTAL
VEGETATION RELEASES

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Smooth cordgrass (*Spartina alterniflora*)

- 1) **Aquatic Plants of Florida, Inc.**
 8120 Blaikie Court
 Sarasota, FL 34240
 Phone: (941) 378-2700, Fax: (941) 378-0020
 Website: <http://www.aquaticplantsofflorida.com>
 Wetland perennials, grasses, & trees (Wholesale, retail, container, bare root)

- 2) **Don Heuman Greenhouse & Lab**
 308 Rue St. Peter
 Metairie, LA 70005
 Phone: (504) 833-2473 Fax: (504) 835-2301
 Email: djh808@aol.com

Seashore paspalum (*Paspalum vaginatum*)

- 1) **Erosion Control Services**
 307 Gauthier Lane
 Simmesport, LA 71319
 Phone: (318) 941-2461 Fax: (318) 941-2465
 Email: soilerosion@cricket.net

- 2) **Don Heuman Greenhouse & Lab**
 308 Rue St. Peter
 Metairie, LA 70005
 Phone: (504) 833-2473 Fax: (504) 835-2301
 Email: djh808@aol.com

Seoats (*Uniola paniculata*)

- 1) **Don Heuman Greenhouse & Lab**
 308 Rue St. Peter
 Metairie, LA 70005
 Phone: (504) 833-2473 Fax: (504) 835-2301
 Email: djh808@aol.com

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- 2) **Biophilia Nature Center**
12695 County Rd. 95
Elberta, AL 36530
Phone: (251) 987-1200
Email: biophilia@gulftel.com
Website: <http://www.biophilia.net>
Trees & perennials (retail, mail order, container, seed)

- 3) **Dodd & Dodd Native Nurseries**
P.O. Box 349
Semmes, AL 36575
Phone: (334) 645-2222
Email: info@doddnatives.com
Website: <http://www.doddnatives.com/flashintro.html>
Grasses, trees, & shrubs (wholesale, container)

- 4) **Superior Trees, Inc.**
12493 E. Hwy 90
Lee, FL 32059
Phone: (850) 971-5159, Fax: (850) 971-5416
Grasses, wildflowers & trees (wholesale, bareroot & container)

- 5) **Native & Uncommon Plants**
4157 Ortega Blvd.
Jacksonville, FL 32210
Phone: (904) 388-9851, Fax. (904) 388-9851
Email: lespeirpont@mac.com
Website: <http://www.nativeanduncommonplants.com>
Perennials, shrubs & trees (retail, container)

- 6) **Aquatic Plants of Florida, Inc.**
8120 Blaikie Court
Saratosa, FL 34240
Phone: (941) 378-2700, Fax: (941) 378-0020
Website: <http://www.aquaticplantsofflorida.com>
Wetland perennials, grasses, & trees (wholesale, retail, container, bare root)

- 7) **Florida Native Plants**
 730 Myakka Road
 Sarasota, FL 34230
 Phone: (941) 322-1915, Fax: (941) 322-0208
 Email: info@floridanativeplants.com
 Grasses, perennials, trees & shrubs (retail, container)
- 8) **Wilcox Nursery**
 12501 Indian Rocks Rd.
 Largo, FL 33774
 Phone: (727) 595-2073, Fax: (727) 595-6963
 Email: infoGreen@wilcoxnursery.com
 Perennials, trees & shrubs (retail, container)
- 9) **Stokes Tropicals**
 4806 E. Old Spanish Trail
 Jeanerette, LA 70544
 Phone: (337) 365-6998
 Email: info@stokestropicals.com
 Website: <http://www.stokestropicals.com>
 Perennials, trees & shrubs (retail, online ordering, mail order, container)
- 10) **Legare Farms, Inc.**
 2442 Hascombe Point Rd.
 Johns Island, SC 29455
 Phone: (843) 559-0763, Fax. (843) 559-3524
 Website:
<http://www.realpagessites.com/legarefarms/nss-folder/legarefarms/page2.html>
 Grasses, perennials, trees & shrubs (retail, container)

Bitter panicum (*Panicum amarum*)

- 1) **Wilcox Nursery**
 12501 Indian Rocks Rd.
 Largo, FL 33774
 Phone: (727) 595-2073, Fax: (727) 595-6963
 Email: infoGreen@wilcoxnursery.com
 Perennials, trees & shrubs (retail, container)

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2) **Green Images Native Landscape Plants**

1333 Taylor Creek Rd.
 Christmas, FL 32709
 Phone: (407) 568-1333, Fax: (407) 568-2061
 Email: greenimage@aol.com
 Grasses, perennials, trees & shrubs
 (wholesale, retail, container)

3) **Wetlands Restorations**

4700 E. Old Jeanerette Road
 New Iberia, LA 70563
 Phone: (337) 364-9613 Fax: (337) 364-9903
 Email: dauterive@cox-internet.com
 Website: www.dauterive.com

Coastal panicgrass (*Panicum amarum* var. *amarulum*)

1) **Aquatic Plants of Florida, Inc.**

8120 Blaikie Court
 Sarasota, FL 34240
 Phone: (941) 378-2700, Fax: (941) 378-0020
 Website: <http://www.aquaticplantsofflorida.com>
 Wetland perennials, grasses, & trees (Wholesale, retail, container, bare root)

2) **Wilcox Nursery**

12501 Indian Rocks Rd.
 Largo, FL 33774
 Phone: (727) 595-2073, Fax: (727) 595-6963
 Email: infoGreen@wilcoxnursery.com
 Perennials, trees & shrubs (retail, container)

3) **Green Images Native Landscape Plants**

1333 Taylor Creek Rd.
 Christmas, FL 32709
 Phone: (407) 568-1333, Fax: (407) 568-2061
 Email: greenimage@aol.com
 Grasses, perennials, trees & shrubs
 (wholesale, retail, container)

- 4) **Adams Briscoe Seed**
 325 East Second St.
 Jackson, GA 30233-2066
 Phone: (770) 775-7826 Fax: (770) 775-7122
 Email: abseed@juno.com
 Website: www.abseed.com
 Grasses, legumes, & perennials (wholesale, retail, seed)
- 5) **Honeyhole Nurseries**
 3211 Piney Woods Lake Rd.
 Glenwood, GA 30428
 Phone: (478) 463-3364, Fax: (478) 463-3770
 Email: inquiries@honeyholenurseries.com
 Website: www.honeyholenurseries.com
 Grasses, legumes, trees & shrubs (wholesale, retail, mail order, bare root, seed)
- 6) **Legare Farms, Inc.**
 2442 Hascombe Point Rd.
 Johns Island, SC 29455
 Phone: (843) 559-0763, Fax. (843) 559-3524
 Website:
<http://www.realpagessites.com/legarefarms/nss-folder/legarefarms/page2.html>
 Grasses, perennials, trees & shrubs (retail, container)
- 7) **Ernst Conservation Seeds**
 9006 Mercer Pike
 Meadville, PA 16335
 Phone: (814) 336-2404 Fax: (814) 336-5191
 Email: Ernst@ernstseed.com
 Website: www.ernstseed.com

Marshhay cordgrass (*Spartina patens*)

- 1) **Superior Trees, Inc.**
 12493 E. Hwy 90
 Lee, FL 32059
 Phone: (850) 971-5159, Fax: (850) 971-5416
 Grasses, wildflowers & trees (Wholesale, Bare Root & Container)

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Website: <http://www.aquaticplantsofflorida.com>
Wetland perennials, grasses, & trees (Wholesale, retail, container, bare root)

- 3) **Florida Native Plants**
730 Myakka Road
Sarasota, FL 34230
Phone: (941) 322-1915, Fax: (941) 322-0208
Email: info@floridanativeplants.com
Grasses, perennials, trees & shrubs (retail, container)

- 4) **Spartina Farms LLC**
1332 Briarridge Dr.
Baton Rouge, LA 70810
Phone: (225) 766-9206
Email: dbecker@spartinafarms.com
Website: www.spartinafarms.com

- 5) **Southern Coastal Restoration**
P.O. Box 201
Larose, LA 70373
Phone: (985) 696-5550 Fax: (985) 693-3696

- 6) **Wetlands Restorations**
4700 E. Old Jeanerette Road
New Iberia, LA 70563
Phone: (337) 364-9613 Fax: (337) 364-9903
Email: dauterive@cox-internet.com
Website: www.dauterive.com

- 7) **Don Heumann Greenhouse & Lab**
308 Rue St. Peter
Metairie, LA 70005
Phone: (504) 833-2473 Fax: (504) 835-2301
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Beach sunflower (*Helianthus debilis* subsp. *debilis*)

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Phone: (850) 971-5159, Fax: (850) 971-5416
Grasses, wildflowers & trees (Wholesale, Bare Root & Container)

- 2) **Native & Uncommon Plants**
4157 Ortega Blvd.
Jacksonville, FL 32210
Phone: (904) 388-9851, Fax. (904) 388-9851
Email: lespeirpont@mac.com
Website: <http://www.nativeanduncommonplants.com>
Perennials, shrubs & trees (retail, container)

- 3) **Florida Native Plants**
730 Myakka Road
Sarasota, FL 34230
Phone: (941) 322-1915, Fax: (941) 322-0208
Email: info@floridanativeplants.com
Grasses, perennials, trees & shrubs (retail, container)

- 4) **Biosphere Consulting**
14908 Tilden Rd.
Winter Green, FL 34787
Phone: (407) 656-8277, Fax: (407) 656-2889
Email: biosphere@biospherenursery.com
Perennials, trees & shrubs (retail, container)

- 5) **Wilcox Nursery**
12501 Indian Rocks Rd.
Largo, FL 33774
Phone: (727) 595-2073, Fax: (727) 595-6963
Email: infoGreen@wilcoxnursery.com
Perennials, trees & shrubs (retail, container)

6) **Green Images Native Landscape Plants**

1333 Taylor Creek Rd.

Christmas, FL 32709

Phone: (407) 568-1333, Fax: (407) 568-2061

Email: greenimage@aol.com

Grasses, perennials, trees & shrubs

(wholesale, retail, container)

Partridge pea (*Chamaecrista fasciculata*)

1) **Murphree Seed Farm**

4542 CR 83

Collinsville, AL 35961

Phone: (256) 523-3938, Fax: (256) 523-3937

Grasses & legumes (wholesale, retail, seed)

2) **Kaufman Seed Inc.**

34 E. Main St.

Ashdown, AR 71822

Phone: (870) 898-3328, Fax: (870) 898-3302

Email: kaufmanseed@akansas.net

Grasses, legumes & perennials (wholesale, seed)

3) **Adams Briscoe Seed**

325 East Second St.

Jackson, GA 30233-2066

Phone: (770) 775-7826 Fax: (770) 775-7122

Email: abseed@juno.com

Website: www.abseed.com

Grasses, legumes, & perennials (wholesale, retail, seed)

4) **Specialty Seed**

132 Ferry Rd.

Anguilla, MS 38721

Phone: (662) 836-5740, Fax: (662) 836-3194

Website: <http://www.greenforestnursery.com>

Trees (wholesale, retail, container)

5) **Southern Wildlife Seed**

P.O. Box 1212

Senatobia, MS 38668

Phone: (662) 562-6980, Fax: (662) 562-9405

Email: stevepayne@southernwildlifeseed.com

Website: <http://www.southernwildlifeseed.com>

Grasses & forbs (retail, mail order, seed)

6) **Browning Seed Inc.**

3101 S. I0-27 #1

Plainview, TX 79072

Phone: (800) 243-5271, Fax: (806) 293-9050

Email: orders@browningseed.com

Website: <http://www.browningseed.com/bsstore>

Grasses, forbs & legumes (retail, online ordering, mail order, seed)

REFERENCES

- Craig, Robert M. 1991. Plants for Coastal Dunes of the Gulf and South Atlantic Coasts and Puerto Rico. USDA-Natural Resources Conservation Service. Agriculture Information Bulletin 460. 41p.
- Duncan. W. and M. Duncan. 1987. The Smithsonian Guide to Seaside Plants of the Gulf and Atlantic Coasts from Louisiana to Massachusetts, Exclusive of Lower Peninsular Florida. Smithsonian Institution Press, Washington, D.C., and London.
- Fournier, M. and C. Miller, ed. and W. Skaradek, Ed. 2003. [Standard for Creating and Restoring Sand Dunes](#). USDA-NRCS Cape May Plant Materials Center. Cape May, NJ. 2003. 11 p.
- Surrency, D. 1992. [Measures for Stabilizing Coastal Dunes: Alabama, Georgia](#). USDA-NRCS Georgia Plant Materials Center, Americus, GA. August 1992. 16 p.
- Thetford, M. and D. Miller. 2002. "Propagation of 4 Florida Coastal Dune Species." Native Plants Journal. Vol. 3 (2): 112-120.
- USDA-NRCS Jamie L. Whitten Plant Materials Center. Plant Materials Technical Note No. 102. Mississippi Planting Guide 4th Edition. USDA-Natural Resources Conservation Service Jamie L. Whitten Plant Materials Center, Coffeeville, MS, and Ecological Sciences Staff, August, 2006. 137p.