



Tyndall Air Force Base (Bay County)

Photo by Ann F. Johnson

Coastal Grassland

Description: Coastal grassland is a predominantly herbaceous community occupying the drier portions of the transition zone between beach dunes on the immediate coast and communities dominated by woody species, such as coastal strand or maritime hammock, further inland. It occurs primarily on the broader barrier islands and capes along the sandy coasts of Florida. The specialized dune building grasses of the beach dune community, sea oats (*Uniola paniculata*), bitter panicgrass (*Panicum amarum*), and saltmeadow cordgrass (*Spartina patens*), are usually present, along with a variety of other herbaceous species typically found on more stable soils, such as bluestem grasses (*Andropogon* spp., *Schizachyrium* spp.), camphorweed (*Heterotheca subaxillaris*), and earleaf greenbrier (*Smilax auriculata*; Johnson and Muller 1993a).

Characteristic Set of Species: bluestem species, camphorweed, earleaf greenbrier

Rare Species: Rare plant species of the coastal grassland community include Godfrey's goldenaster (*Chrysopsis godfreyi*), Cruise's goldenaster (*Chrysopsis gossypina* ssp. *cruiseana*), and Gulf Coast lupine (*Lupinus westianus*) in the Panhandle; Sanibel lovegrass (*Eragrostis pectinacea* var. *tracyi*), hairy beach sunflower (*Helianthus debilis* ssp. *vestitus*), and Gulf Coast Florida lantana (*Lantana depressa* var. *sanibelensis*) on the southwest Gulf coast; Garber's spurge (*Chamaesyce garberi*) on Cape Sable in the Everglades; and coastal vervain (*Glandularia maritima*), Atlantic Coast Florida lantana (*Lantana depressa* subsp. *floridana*), coastal hoary-pea (*Tephrosia angustissima* var. *curtissii*), and beachstar (*Cyperus pedunculatus*) on the Atlantic coast.

A number of rare animals use coastal grasslands for foraging and nesting, including six subspecies of beach mouse: four along the Panhandle coast, the Perdido Key beach mouse (*Peromyscus polionotus trissyllepsis*), the Santa Rosa beach mouse (*P. p.*

leucocephalus), the Choctawhatchee beach mouse (*P. p. allophrys*), and the St. Andrews beach mouse (*P.p. peninsularis*), and two along the Atlantic coast, the Anastasia Island beach mouse (*P. p. phasma*) and the southeastern beach mouse (*P. p. niveiventris*). Three rare shorebirds may nest in coastal grasslands, the snowy plover (*Charadrius alexandrinus*), Wilson's plover (*Charadrius wilsonia*), and American oystercatcher (*Haematopus palliatus*). Four rare invertebrates are found in this community along the Florida Panhandle coast. Woodruff's polyphyllan scarab beetle (*Polyphylla woodruffi*) and barrier island hesperapis bee (*Hesperapis oraria*) are restricted to the coast, and two other beetles (*Gronocarus autumnalis* and *G. inornatus*) also occur inland.

Range: Coastal grassland is found primarily on broader barrier islands and capes along the sandy coasts of Florida. Outside of Florida it occurs westward to the Mississippi barrier islands and northward to the Carolinas (Johnson and Barbour 1990).

Natural Processes: Coastal grassland develops in two ways: either as a barrier island builds seaward, developing new dune ridges along the shore which protect the inland ridges from sand burial and salt spray, or as a beach recovers after storm overwash and a new foredune ridge builds up along the shore, protecting the overwashed area behind it from sand burial and salt spray. Distance from the coast and the physical barrier of the first dune ridge above the beach (foredune) diminish the intensity of sand burial and salt spray, which affect the coastal grassland community to a lesser extent than they do the beach dune community. If storm waves breach the foredune and spread sand over the coastal grassland, a beach dune community will re-colonize at first. Fertilization from piles of seaweed washed up by the storm helps to speed plant growth and the re-colonization process. Once a new foredune ridge builds up above the beach and plant cover inhibits further sand movement behind this ridge, other herbaceous species can colonize and occur with the coastal pioneer species to form the coastal grassland community. As time passes, absent further storms, the coastal grassland community itself will gradually be replaced by woody species to form scrub, coastal strand, or maritime hammock communities.

Fire is naturally rare and localized in this community with water barriers and sparse fuels combining to limit its spread.

Community Variations: Coastal grassland is well-developed in the Panhandle where it includes a number of species endemic to the stretch of Gulf coast from Florida to Mississippi. These include the dominant grass, Gulf bluestem (*Schizachyrium maritimum*), plus squareflower (*Paronychia erecta*), and coastal sand frostweed (*Helianthemum arenicola*). Other species commonly found in these coastal grasslands are coastal plain honeycomb-head (*Balduina angustifolia*), eastern milkpea (*Galactia regularis*), and Le Conte's flatsedge (*Cyperus lecontei*; Johnson et al. 1992). On the southwest Gulf coast a distinctive coastal grassland community is found on the broad barrier islands fronting Pine Island Sound, e.g., Cayo Costa, North Captiva, and formerly Captiva and Sanibel (Cooley 1955). It consists of a short, dense sward of hairy gramma (*Bouteloua hirsuta*), a western disjunct found in Texas and on the western high plains (Kuchler 1964). Other species present include beach creeper (*Ernodea littoralis*), erect pricklypear (*Opuntia stricta*), and Gulf Coast Florida lantana (*Lantana depressa* var. *sanibelensis*; Johnson and Muller 1992). The herbaceous flats behind the foredunes at Amelia and Little Talbot Islands in northeast Florida may have more herbs than grasses,

including beach pennywort (*Hydrocotyle bonariensis*), seabeach eveningprimrose (*Oenothera humifusa*), camphorweed, and cockspur pricklypear (*Opuntia pusilla*; Johnson and Muller 1993b). In the few instances where coastal grassland occurs on the southeast coast, e.g., at Cape Canaveral, St. Lucie Inlet State Park and, and the recently restored Cape Florida, beach-star may be present with other common grasses and forbs in the coastal grassland community.

Associated Communities: Coastal grassland is distinguished from the beach dune community by its position inland from the immediate coastline and the presence of a variety of grasses and forbs, such as bluestem grasses and camphorweed, in addition to the pioneer dune-building grasses such as sea oats. It differs from coastal berm in its position on a sandy coast, rather than on a storm-deposited shell ridge on a mangrove-dominated shoreline. It is distinguished from coastal interdunal swale by the absence of species tolerant of inundation, such as sawgrass (*Cladium jamaicense*) or needle rush (*Juncus roemerianus*) and the predominance of species found on dry sites. Hairawn muhly (*Muhlenbergia capillaris*) may be present in coastal grasslands, but dense stands of it are more characteristic of coastal interdunal swales. Coastal grassland is distinguished from coastal strand and maritime hammock in being dominated by herbaceous rather than woody species.

Management Considerations: Fires are rare in this community. Most coastal species are good colonizers and will re-vegetate a beach naturally after storms. If restoration plantings are used, care should be taken not to plant coastal endemics outside their range. For example, east coast dune sunflower (*Helianthus debilis*) is widely available in the nursery trade, but it is native only to the Atlantic coast of Florida and could hybridize with the endemic hairy beach sunflower on the southwest Gulf coast if planted outside its range. The cultivated lantana (*Lantana camara*), which naturalizes in disturbed sites, regularly hybridizes with the two rare coastal subspecies of *Lantana depressa* and should be removed if found in the vicinity of the rare plants. Invasion by the exotic Australian pine (*Casuarina equisetifolia*) following storm disturbance is an ongoing threat, since it can establish above the upper beach, and interrupt the natural succession of native vegetation. The natural successional sequence following storms is not known for the southerly coasts of the peninsula; long-term monitoring, following removal of Australian pines, would be helpful in determining these stages particularly if done in a variety of coastal situations.

Exemplary Sites: Gulf Islands National Seashore (Okaloosa County), Topsail Hill Preserve State Park (Walton County), St. Joseph Peninsula State Park (Gulf County), Canaveral National Seashore (Volusia/Brevard County), Anclote Key Preserve State Park (Pasco County), Cayo Costa Island State Park (Lee County)

Global and State Rank: G3/S2

Crosswalk and Synonyms:

Kuchler	90/Live oak - Sea oats
Davis	1/Coastal Strand
SCS	1/North Florida Coastal Strand 2/South Florida Coastal Strand
Myers and Ewel	Dunes and maritime hammocks -transition zone
SAF	N/A
FLUCCS	310/Herbaceous

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