

# Map Unit Properties Table: Padre Island National Seashore

Age	Unit Name (Symbol)	Features and Description	Suitability for Infrastructure and Recreation	Hazards	Habitat	
QUATERNARY (Holocene Epoch)	Man-made Units	Vegetated spoil mound (M1)	Partially vegetated, subaerial deposits of dredge material from the Gulf Intracoastal Waterway	Suitable for recreation but somewhat limited suitability for paths, trails, and 4WD trails. Very limited suitability for camp and picnic areas.	Flooding	Saline-water wetland plants and riparian shrubs, vines, and trees. Popular nesting grounds for a variety of bird species.
		Barren spoil mound (M2)	Barren, subaerial deposits of dredge material from the Gulf Intracoastal Waterway. Contains gypsum crystals.	Suitable for recreation but somewhat limited suitability for paths, trails, and 4WD trails. Very limited suitability for camp and picnic areas.	Flooding	Algal mats
		Subaqueous spoil (M3)	Submerged dredge material from the Gulf Intracoastal Waterway	Unsuitable, submerged	None	Marine grass
		Modified land (M4)	Land modified by human activity	Disturbed by oil and gas exploration. Existing development.	Potential contamination from oil and gas spills or leaks	Alteration of natural environment evident on aerial photographs. Devegetation scars.
	Barrier System Units	Beach (B1)	Sand and shell of varying compositions from north to south. Varying profile shapes and widths. Predominant internal structure (gently seaward-dipping planar laminations) produced by wave swash. <i>Mapping notes:</i> Bounded to the east by marine open waters of the Gulf of Mexico and landward by a prominent fore-island dune ridge. Gulfward shoreline captured from 2000 LIDAR data.	Tolerant of recreation but limited suitability for paths, trails, and 4WD trails. Very limited suitability for camp and picnic areas. Frequent wave surges and subsequent saltwater contamination.	Flooding	Foreshore is ecotone. Kemp's ridley turtle ( <i>Lepidochelys kempii</i> ) nesting site. Habitat for ghost crab ( <i>Ocypode quadrata</i> ), mole crab ( <i>Emerita</i> ), snails ( <i>Olivella</i> and <i>Terebra</i> ), staphylinid beetles, polychaete worm ( <i>Lepidopa</i> ), coquina clam ( <i>Donax variabilis</i> ). Texas pocket gopher ( <i>Geomys personatus</i> ) in backshore. Grasses. Freshwater and saline-water wetland plants in backbeach.
		Coppice dunes (B2)	Composed of fine beach sand. Characteristic mound appearance. Commonly found in backbeach, landward of fore-island dune ridge, and within sand flats. Forms broad fields where fore-island dune ridge is absent.	Unsuitable for development and recreation. Sensitive to vehicular and pedestrian traffic.	Blowing sand and migrating dunes	Animal species similar to beach habitat
		Fore-island dune ridge (B3)	Grass-covered or sparsely vegetated. Fine, well-sorted sand containing rare shells. Parallels the Gulf of Mexico shoreline, becoming less prominent farther south on the island. <i>Mapping notes:</i> Vegetated surfaces interpreted primarily from 2003 photographs. Boundary frequently interpreted through comparison with 2000 LIDAR DEM. Aerial photography signature alone did not provide sufficient information to delineate dune extent; however, the high vertical resolution of the LIDAR allowed delineation of the dune ridge throughout the entire length of the island.	Unsuitable for development and recreation, should not be breached. Lens of fresh groundwater underneath, thinning towards back-island dune system.	Inundation and erosion during hurricanes. First landward defense against floods and storms.	Plants zoned by elevation on the dunes. Lower: marshhay cordgrass ( <i>Spartina patens</i> ), morning glory ( <i>Ipomoea</i> spp.), and sea purslane ( <i>Sesuvium portulacastrum</i> ). Middle and upper: sea oats ( <i>Uniola paniculata</i> ), bitter panicum ( <i>Panicum amarum</i> ), and gulf croton ( <i>Croton punctatus</i> ). Backside of foredunes: seacoast bluestem ( <i>Andropogon scoparius littoralis</i> ). Ghost crab, burrowing mammals, and reptiles
		Vegetated barrier flat (B4)	Most common terrestrial environment. Fine and coarse sand and shells. Includes heavily vegetated stabilized dunes. Located behind fore-island dune ridge.	Remains of three (ranching) line camps. Suitable for recreation but very limited suitability for paths, trails, 4WD trails, and camp and picnic areas. Groundwater withdrawal and water diversion could easily kill vegetation, resulting in dune migration.	Flooding and ponding	Grasses. Riparian shrubs, vines, and trees. Freshwater wetland plants. Pocket gophers, moles, weasels, ground squirrels, mice, and snakes; occasionally coyotes, shrews, bats, raccoons, skunks, rats, jackrabbits, and armadillos. Insects abound.
		Temporarily flooded brackish to fresh marsh (B4a)	Forms in deeper, troughlike wind-deflation flats. Floored by mostly sand, also mud and plant debris. <i>Mapping notes:</i> Lightest tone of marsh signatures. Visible on 2003 photographs but absent on 2002 and 1995 photographs.	Sensitive to recreation	Flooding and ponding	Various forms of algae. Plants such as common cattail ( <i>Typha domingensis</i> ), American bulrush ( <i>Scirpus americanus</i> ), and spikerushes ( <i>Eleocharis</i> sp.) in marshy areas.
		Salt marsh (B4b)	Forms in deeper, troughlike wind-deflation flats. Floored by mostly sand, also mud and plant debris. <i>Mapping notes:</i> Characteristic dark signature adjacent to saltwater bodies or areas frequently flooded with saltwater. Undivided.	Sensitive to recreation	Flooding and ponding	Shoregrass ( <i>Monanthochloe littoralis</i> ), inland saltgrass ( <i>Distichlis spicata</i> ), bushy sea-oxeye ( <i>Borrchia frutescens</i> ), and perennial forbs
		Seasonally flooded brackish to fresh marsh (B4c)	Forms in deeper, troughlike wind-deflation flats. Floored by mostly sand, also mud and plant debris. <i>Mapping notes:</i> Visible on 2003 and 2002 photographs. Mostly absent from 1995 photographs.	Sensitive to recreation	Flooding and ponding	Various forms of algae. Plants such as common cattail ( <i>Typha domingensis</i> ), American bulrush ( <i>Scirpus americanus</i> ), and spikerushes ( <i>Eleocharis</i> sp.) in marshy areas.
		Semipermanently flooded brackish to fresh marsh (B4d)	Forms in deeper, troughlike wind-deflation flats. Floored by mostly sand, also mud and plant debris. <i>Mapping notes:</i> Darkest marsh signature. Visible on all vintages of photographs.	Sensitive to recreation	Flooding and ponding	Various forms of algae. Plants such as common cattail ( <i>Typha domingensis</i> ), American bulrush ( <i>Scirpus americanus</i> ), and spikerushes ( <i>Eleocharis</i> sp.) in marshy areas.
		Sparsely vegetated barrier flat (B5)	Highly fragmented vegetation. Barren areas expose oldest sand in the national seashore.	Suitable water source for groundwater withdrawal. Greatest volume of freshwater of any map unit.	Flooding and ponding. Active blowout dunes.	Potential habitat for grasses. Riparian shrubs, vines, and trees. Freshwater wetland plants. Pocket gophers, moles, weasels, ground squirrels, mice, and snakes; occasionally coyotes, shrews, bats, raccoons, skunks, rats, jackrabbits, and armadillos.

Age	Unit Name (Symbol)	Features and Description	Suitability for Infrastructure and Recreation	Hazards	Habitat	
QUATERNARY (Holocene Epoch)	Barrier Island Units	Stabilized dune (B5a)	Moderately vegetated blowout dunes in elongate or parabolic forms. Sediment derived from fore-island dune ridge. <i>Mapping notes:</i> Distinct from vegetated barrier flat through shape and bright signature of underlying dune sand.	Unsuitable for development and recreation. Should not be disturbed.	Second defense against floods and storms	Grasses such as bitter panicum ( <i>Panicum amarum</i> ), bitter panicum ( <i>Panicum amarum</i> ), gulf dune paspalum ( <i>Paspalum vaginatum</i> ), and dropseed ( <i>Sporobolus silveanus</i> )
		Storm washover channel (B7)	Non-vegetated conduit as much as 213 m (700 ft) wide for sand, shells, and water during storms. Mud in ponded areas. <i>Mapping notes:</i> Found exclusively in the southern third of the map area (South Padre Island).	Unsuitable for developments. Hurricane-formed feature. Cuts through fore-island dune ridges.	Inundation during hurricanes. Ponding.	Algal mats around edges of ponds
		Storm washover fan (B7a)	Non-vegetated sand deposit from washover channel. Slight topographic relief on gulfward end but grades imperceptibly into back-island environments.	Unsuitable for developments. Hurricane deposit.	Inundation during hurricanes	Non-vegetated
		Wind-deflation flat (B8)	Sand and finer sediments with shell and cobble lag deposit. Mud drapes. Transitional between barrier and lagoon environments. <i>Mapping notes:</i> Found in southern third of the map area (South Padre Island).	Unsuitable for development. Serves as storm-water runway.	Storm waters deposit sediment on unit. Flooding and ponding in troughs.	Algal mats
		Sand flat (B8a)	Non-vegetated, high sand flat. Commonly fringing back-island vegetated barrier flats and coppice dunes.	Unsuitable for development	Blowing sand and rapidly migrating dunes. Flooding.	Non-vegetated
		Water (B9)	Larger ponds and marshes. Ephemeral. Forms in deeper troughs of wind-deflation flats.	Ponds serve as discharge areas during fall and spring (wet seasons) and recharge areas during summer and winter (dry seasons) of groundwater system.	Ponds contain pathogenic organisms. Should not be used for potable water.	Various forms of algae. Plants such as common cattail ( <i>Typha domingensis</i> ), American bulrush ( <i>Scirpus americanus</i> ), and spikerushes ( <i>Eleocharis</i> sp.) in marshy areas.
		Dredged channel (B9a)	Gulf Intracoastal Waterway and Mansfield Channel. Contains gypsum crystals.	Suitable for boating and fishing. Maintenance dredging required to keep channels open. Laguna Madre sensitive to changing salinity and hydrological conditions.	Sedimentation, turbidity, and resuspension of contaminants	Negative impacts to grassflats, vertebrate and invertebrate marine species, and nesting-bird habitat.
		Active dunes (B10)	Devegetated. Fine sands. Back-island dune field and fore-island blowout dunes. Exemplifies barrier-island migration toward the Texas mainland. <i>Mapping notes:</i> Bright, nearly white signature on photographs.	Unsuitable for development and recreation. Should not be breached.	Blowing sand and migrating dunes	Burrowing mammals and reptiles
		Back-island sand flat (B11)	Non-vegetated, small migrating dunes. Transitional from back-island dune field to wind-tidal flat.	Unsuitable for development and recreation. Sensitive to vehicular and pedestrian traffic.	Rapid changes in dune forms. Flooding.	Algal mats. Texas pocket gopher.
	Lagoon System Units	Wind-tidal flat with small dunes (L1)	Loose wind-blown sand. Contains gypsum crystals. Forms in Land-Cut area.	Unsuitable for development and recreation. Highly susceptible to vehicular and pedestrian traffic. Cut by Gulf Intracoastal Waterway. Brine (hypersaline) groundwater.	Inundation during hurricanes. Migrating dunes. Rarely flooded by wind tides.	Saline-water wetland plants. Macroinvertebrates. Piping plover. Texas pocket gopher.
		Wind-tidal flat with firm sand and mud (L2)	Higher areas rarely flooded. Lagoonward fringes of back-island area.	Unsuitable for development and recreation. Highly susceptible to vehicular and pedestrian traffic. Cut by Gulf Intracoastal Waterway. Brine (hypersaline) groundwater.	Inundation during hurricanes. Rarely flooded by wind tides.	Saline-water wetland plants. Macroinvertebrates. Piping plover.
		Wind-tidal flat with algal mats (L3)	Sand and mud. Alternately emergent/submergent.	Unsuitable. Highly susceptible to vehicular and pedestrian traffic. Cut by Gulf Intracoastal Waterway. Brine (hypersaline) groundwater.	Inundation during hurricanes. Frequent flooding. Ponding.	Algal mats. Saline-water wetland plants. macroinvertebrates. Piping plover.
		Vegetated sand and shell berms (L4)	Vegetated, accretionary, subaerial, natural islands (i.e., North Bird and South Bird islands)	Development and recreation prohibited. Wildlife sanctuary.	Storm waves	Bitter panicgrass ( <i>Panicum amarum</i> ), perennial forbs, sea oats ( <i>Uniola paniculata</i> ), camphorweed ( <i>Pluchea Cass.</i> ), and seacoast bluestem ( <i>Schizachyrium scoparium</i> ). Popular nesting grounds for a variety of bird species.
		Lagoon-margin sand (L5)	Subaqueous to emergent, usually submerged under as much as 0.9 m (3 ft) of water. Sand waves and ripples common.	Unsuitable. Generally submerged.	Flooding and ponding	High-energy lagoon margin. Typically unvegetated.
		Grassflat (L6)	Mud including shell and grass. Generally covered by <1.2 m (4 ft) of water. Shallowest parts exposed at low tide.	Unsuitable. Submerged. High biologic productivity easily disturbed by changes in turbidity, salinity, and water depth.	None	Algae. Marine grasses, primarily shoalgrass ( <i>Halodule wrightii</i> ), also widgeon-grass ( <i>Ruppia maritima</i> ), turtlegrass ( <i>Thalassia testudinum</i> ), clovergrass ( <i>Halophila engelmannii</i> ), and manateegrass ( <i>Cymodocea manatorium</i> ). Saline-water wetland plants. Extensive invertebrate population. Breeding grounds for fish and waterbird species.