Natural Resources
Conservation Service

Ecological site R151XY002LA
Saline Marsh 55-64 PZ

Accessed: 05/12/2025

General information

Approved. An approved ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model, enough information to identify the ecological site, and full documentation for all ecosystem states contained in the state and transition model.

Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 151X–Gulf Coast Marsh

Major land resource area (MLRA)151, Gulf Coast Marsh, is in Louisiana (95 percent), Texas (4 percent), and Mississippi (1 percent). It makes up about 8,495 square miles (22,015 square kilometers). The towns of Gretna, Chalmette, and Marrero, Louisiana, and the city of New Orleans, Louisiana, are in the eastern part of this MLRA. The town of Port Arthur, Texas, is in the western part. Interstate 10 and U.S. Highway 90 cross the area. The New Orleans Naval Air Station is in this MLRA. Fort Jackson, overlooking the mouth of the Mississippi River, and the Jean Lafitte National Historic Park and Preserve are in the MLRA. A number of national wildlife refuges and State parks occur throughout this area. MLRA 151 is a very complex ecosystem with active deltaic development and subsidence with extreme anthropogenic impact by man with construction of flood protection levees and channelization occurring on the eastern portion of the MLRA. The Western portion of the MLRA is more stable in that portions of the landscape is protected naturally by the Chenier's, although there is Anthropogenic affects of the interior due to channelization for navigation.

Classification relationships

Major Land Resource Area (MLRA) and Land Resource Unit (LRU) (USDA-Natural Resources Conservation Service, 2006)
The Natural Communities of Louisiana - (Louisiana Natural Heritage Program - Louisiana Department of Wildlife

and Fisheries)

Ecological site concept

These areas are on low Gulf coastal saline marshes at elevations of 1 foot or less. Slopes range from 0 to 0.2 percent. The soils formed in moderately thick herbaceous organic materials overlying fluid clayey or in thick herbaceous, highly decomposed organic material. The unconsolidated saline clayey and organic sediments are too soft for cattle to graze. These areas flood very frequently and frequently with salt water during high tides. This plant community is dominated by smooth cordgrass which is specifically adapted to this site. Average depth of water at high tide ranges from 2 to 12 inches and water salinity varies from 12 to 50 ppt, but may become fresher during periods of high rainfall.

Associated sites

R151XY004LA	**Brackish Fluid Marsh 60-64 PZ** Brackish Fluid Marsh frequently occurs adjacent to the Saline Mineral Marsh
R151XY005LA	**Brackish Firm Mineral Marsh 55-64 PZ** Brackish Firm Marsh frequently occurs adjacent to the Saline Mineral Marsh.

Similar sites

R151XY677TX	**Saline Fluid Marsh 42+ PZ** Occurs in Texas counties immediately west of Louisiana and occupying a narrow strip of land along the entire Texas Gulf Coast. Similar plant species and production. Soils are more susceptible to subsidence and subaqueous erosion on this site.
R150BY550TX	**Northern Salt Marsh** Occurs in Texas counties immediately west of Louisiana and occupying a narrow strip of land along the entire Texas Gulf Coast. Similar plant species, but lower annual production due to less annual rainfall.
R151XY004LA	**Brackish Fluid Marsh 60-64 PZ** Brackish Fluid Marsh frequently occurs adjacent to the Saline Mineral Marsh and has many of the same plant species and similar production potential.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

These areas are on low Gulf coastal saline marshes at elevations of 1 foot or less. Slopes range from 0 to 0.2 percent. The soils formed in moderately thick herbaceous organic materials overlying fluid clayey or in thick herbaceous, highly decomposed organic material. The unconsolidated saline clayey and organic sediments are too soft for cattle to graze. These areas flood very frequently and frequently with salt water during high tides.

Table 2. Representative physiographic features

Landforms	(1) Marsh (2) Delta plain (3) Salt marsh
Flooding duration	Very long (more than 30 days)
Flooding frequency	Frequent to very frequent
Ponding duration	Very long (more than 30 days)
Ponding frequency	Frequent
Elevation	0–1 ft

Slope	0%
Ponding depth	0–6 in
Water table depth	0–6 in
Aspect	S

Climatic features

The average annual precipitation is 60 to 65 inches. About 70 percent of the precipitation occurs during the growing season. Rainfall typically occurs as post-frontal precipitation in the winter and heat-convection showers and thunderstorms in the spring and summer. In addition, tropical storms can bring large amounts of rainfall. The freeze-free period averages 325 days and ranges from 290 to 365 dyas, increasing in length from north to south.

Table 3. Representative climatic features

Frost-free period (average)	327 days
Freeze-free period (average)	327 days
Precipitation total (average)	63 in

Influencing water features

Marsh ecosystems are characterized by unique vegetative and hydrologic factors. Salinity, depth of water, and duration of inundation determine the kinds of plants that can persist in marsh ecosystems. Several factors may affect salinity and/or water depth as well as duration of inundation:

Natural Factors:
•Upstream Hydrology – the duration of flooding is influenced by the volume of water discharged upstream (runoff) in the hydrologic unit. This may be a permanent or transient feature of the water regime.

•Tidal Exchange – all marsh ecosystems are affected to some degree by tidal exchange. It is most evident in saline marshes because the presence or absence of water is obvious. At low tide, salts tend to crystallize on the soil surface where tidal flux is not ponded.

•Salinity – the amount of salt per unit volume of water is a limiting factor in determining which plants that can persist in a marsh ecosystem. Relatively few plants can tolerate prolonged exposure or inundation to waters with high salt concentrations.

Human Induced Factors
•Navigation Enhancement – canals and realignment of natural water courses may have catastrophic effects on marsh ecosystems. These features can inject salt water into areas that previously had lower levels of salinity, and/or they may prolong salt water inundation. Navigation features are frequently deeper than previous natural hydrologic conduits. Salt water is heavier than fresh water and creates a salt water wedge below the fresher surface water in a canal or other navigation feature. In marshes near the Gulf of Mexico or adjacent natural water bodies, navigation features can alter the duration and salinity of tidal flux.

•Salt Water Sills or Barriers – these structural measures limit tidal flow. They are usually in a navigable stream or canal and are designed to limit the amount and/or duration of saline inundation.

•Water Control Structures – these structures are designed to maintain optimum water depth in a hydrologic or management unit. They may be used to manipulate water depth for wildlife, moderate salinity levels, and enhance vegetation management.

Soil features

Soils on this site include Bellpass, Scatlake and Timbalier. These soils formed in moderately thick herbaceous organic materials overlying fluid clayey or in thick herbaceous, highly decomposed organic material. The thickness or organic material ranges from 6 to 100 inches to the contact with fluid clays or silty clays. The herbaceous surface material is mainly sapric material, but hemic and fribric materials as woody peat or wood fragments occur as thin strata. The unconsolidated saline clayey and organic sediments are too soft for cattle to graze. The n-values are generally greater than 1.0, but range from 0.7 to more than 1.0. These soils flood frequently and very frequently with salt water during high tides.

Taxonomic Classification:
Bellpass:Clayey, smectitic, suic, hyperthermic Terric Haplosaprists
Scatlake:Very-fine, smectitic, nonacid, hyperthermic Sodic Hydraquents
Timbalier: Euic, hyperthermic Typic Haplosaprists

Table 4. Representative soil features

Surface texture	(1) Muck
Family particle size	(1) Clayey
Drainage class	Very poorly drained
Permeability class	Very slow
Soil depth	72 in
Available water capacity (0-40in)	4–14 in
Calcium carbonate equivalent (0-40in)	0%
Electrical conductivity (0-40in)	8–16 mmhos/cm
Sodium adsorption ratio (0-40in)	0–20
Soil reaction (1:1 water) (0-40in)	6.1–8.4

Ecological dynamics

The Saline Marsh ecological site is a broad, nearly level coastal flat located adjacent to open water bodies that are subject to tidal activity. Water bodies may include bays, lakes, rivers, bayous, and canals. This is a dynamic ecosystem which changes constantly and sometimes rapidly as a result of natural environmental conditions and climatic events. An overriding site requirement is accessibility of tidal exchange by salt water. Characteristically, saline marshes occur at or near sea level, usually between mean high tide and low tide.

The Saline Marsh ecological site is typically a wet grassland inhabited by salt-tolerant species. The vegetation consists almost entirely of grasses and grass-like plants. Portions of the site may have dense vegetation, but there are frequently areas where plant density is sparse. The micro-relief on saline sites may restrict plant density. Areas which have a shallow depth of water at high tide frequently have a crust of salt crystals at low tide. This concentration of salt restricts the number of species that can persist on this site (e.g. saltworts and glassworts). Likewise, areas which remain wet at low tide frequently have more dense stands of vegetation adapted to higher moisture regimes (e.g. seashore saltgrass). Smooth cordgrass and black needlerush are the dominant plants on the site. Both species need alternating water regimes (i.e. tidal activity) for optimum production and stand persistence. This site has the least plant species diversity of all the marsh sites due to the high concentrations of salt. This site rarely, if ever, transitions to other vegetative communities.

The marsh serves as a natural filtration system for the adjacent coastal waters. It captures sediments, waste, pollutants, and nutrients deposited from agricultural, urban, and industrial areas above the marsh. As upstream waters move through the marsh ecosystem, the continuous filtering action releases cleaner water into the Gulf of Mexico. Marsh sites function as nitrogen and phosphorous sinks, resulting in the improvement in the quality of water that passes through the site. It can serve as a buffer to modify the effects of storms. Marsh vegetation also stabilizes the shoreline and reduces erosion caused by tides, wave action, storms, and flooding.

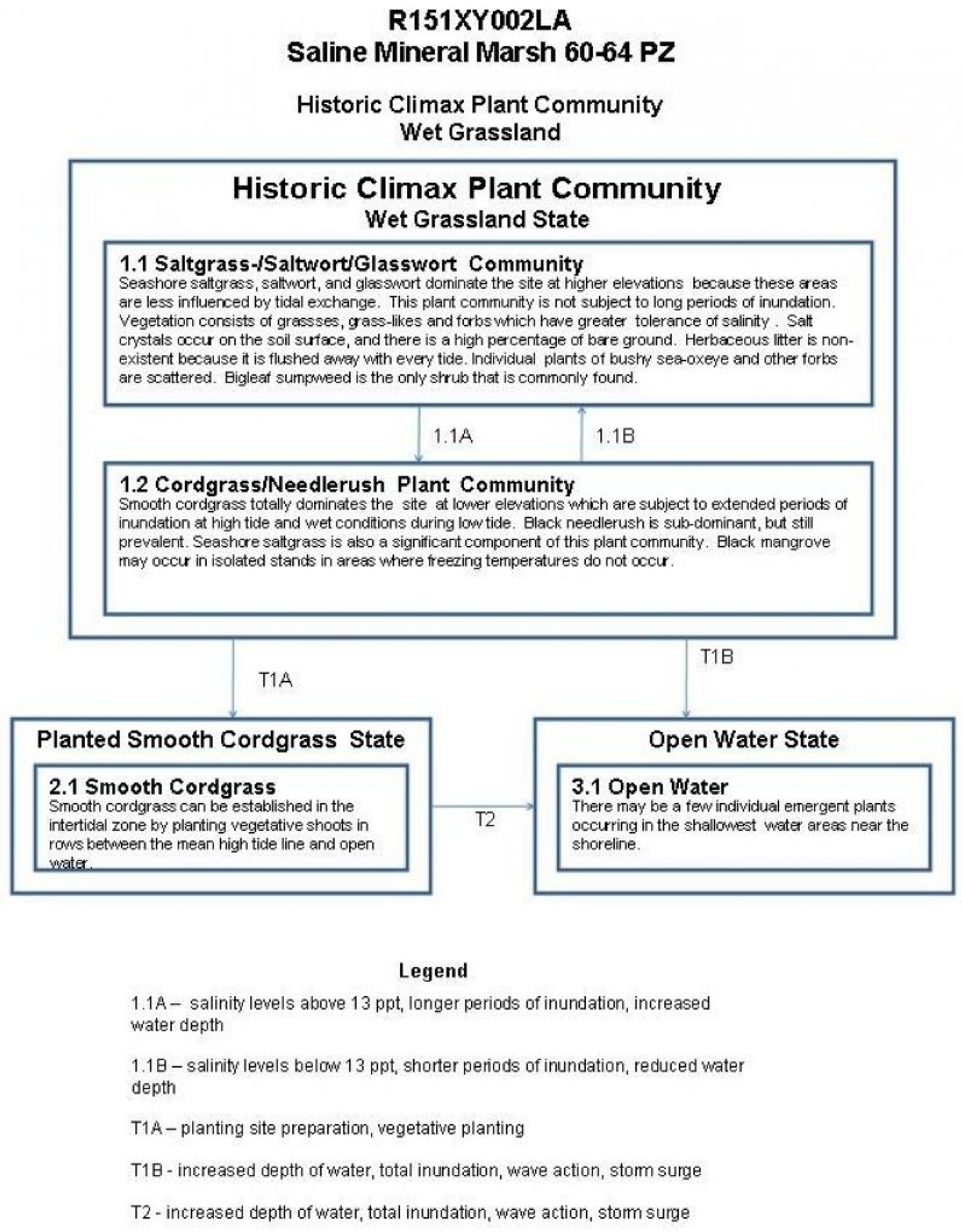
The proximity to the Gulf of Mexico makes this site susceptible to degradation by several natural and human induced actions. Hurricanes and tropical storms can cause entire plant communities to be destroyed in a very short period of time. Constant wind action and low topographic relief make shoreline erosion a constant threat. Those areas with a long fetch of open water are especially vulnerable to wave action.

Subsidence is the process of the soil surface sinking to a lower level. It may occur naturally or be influenced by human activities such as pumping water from wells or creation of navigation channels. As subsidence progresses, vegetation is submerged and may eventually weaken and die. Deepening of existing water bodies and/or dredging new access to canals can cause changes in water depth and increase salinity levels, which may affect marsh vegetation. The loss of anchoring vegetation and the subsequent subaqueous erosion of surface sediment and organic detritus as the result of current or wave action, may lead to permanent loss of vegetation and eventually result in regression to an open water state.

Grazing by cattle, furbearers, and geese can adversely affect vegetation on this site if not properly managed. Cattle grazing can be managed with proper stocking rates and manipulation of the time, frequency, intensity, and duration of grazing. Wildlife grazing pressure presents a management challenge because it is not possible to consistently control the numbers and movements of most wildlife species.

Fire is primary tool for management of saline marsh ecosystems. In order for fire to play a beneficial role in marsh management, burning must be done in a prescribed manner. Burning should be done when there is at least six (6) inches of water covering the marsh. This cushion of water protects the vegetative reproduction tissues of marsh plants. Fire is an excellent tool for removal of old growth to encourage vigorous high quality growth. Fire is effectively used to enhance wildlife habitat and aid in cattle management. A fresh burn will attract cattle, deer, furbearers, and geese to the lush new growth. Burns should be sufficient in size to prevent destructive grazing (eatouts) by furbearers and geese.

State and transition model



State 1
Wet Grassland

Community 1.1

Wet Grassland

The plant community, which consists primarily of seashore saltgrass along with glassworts and saltworts, seashore dropseed, seashore paspalum, and bushy sea-oxeye is found in the upper reaches of the Saline Mineral Marsh. At MHT it is in the intertidal zone. This plant community has a relatively short period of inundation as it experiences the briefest period of tidal exchange. Micro-relief and depth of water are the determining factors in where these species occur. Seashore saltgrass is usually dominant in areas with lower relief and along the trailing edges of tidal flow. Seashore saltgrass can withstand salinities of 13 ppt with spikes up to 20 ppt. Glassworts and saltworts are found on areas of higher micro-relief. These areas are the first to be free of water as the tides recede. As the site begins to dry, salts are wicked to the soil surface. Saltworts can withstand salinities of 15 ppt with spikes up to 30 ppt. Glassworts can withstand salinities of 24 ppt with spikes up to 34 ppt. A number of forbs may occur on the edge of the MHT zone in this plant community. Bushy sea-oxeye, which is the dominant forb, can withstand salinities of 12 ppt with spikes up to 20 ppt. Seashore paspalum also is present along the trailing edge of tidal exchange.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	1200	3500	6000
Shrub/Vine	50	150	300
Forb	50	150	300
Total	**1300**	**3800**	**6600**

Figure 7. Plant community growth curve (percent production by month). LA1511, Louisiana Gulf Coast Marshes. Fresh, Brackish, and Saline Marshes of the Louisiana Gulf Coast .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3	13	23	25	10	7	5	5	5	2	1

Community 1.2
Smooth Cordgrass/Black Needlerush Community

Smooth cordgrass is typically the dominant species with black needlerush being a subdominant, but significant, portion of the community. Other species that occur in minor amounts include seashore saltgrass, marshhay cordgrass, saltmarsh bulrush, spikerush, rushes and sedges, saltwort, glasswort, and bushy sea-oxeye. The smooth cordgrass/black needlerush plant community occurs in the lower reaches of the intertidal zone. These plants are capable of withstanding salinities of 13-15 parts per thousand (ppt) with spikes up to 22 ppt. The leading edge of the plant community is at or near mean high tide (MHT). At MHT, the depth of water can be 1 to 1.5 feet. This plant community can withstand longer periods of inundation as it experiences the longest period of tidal exchange. This plant community must also be able to withstand wave action from adjacent openwater bodies. Smooth cordgrass and black needlerush are usually found in clones or colonies, but they may co-exist. When these species are interspersed, smooth cordgrass is usually the dominant species. Spatially, this plant community does not have a dense cover. Tidal energy is dissipated as it moves through this plant community. In some instances, the energy dissipation may result in the development of high banks which can provide a site for plants such as seashore saltgrass and big cordgrass.

Pathway A
Community 1.1 to 1.2

salinity levels above 13 ppt, longer periods of inundation, increased water depth

Pathway B
Community 1.2 to 1.1

salinity levels below 13 ppt, shorter periods of inundation, reduced water depth

State 2
Planted Smooth Cordgrass

Community 2.1
Planted Smooth Cordgrass

Figure 8. Planted Smooth Cordgrass

Smooth cordgrass can be vegetatively established in the inter-tidal zone. This is a labor intensive and expensive process that involves planting vegetative shoots in two rows on a two foot spacing. The first row should be planted at the mean high (MHT) line, and the second row planted two feet toward open water from the first row. This practice has a relatively low success rate, but when the process is successful, it is effective in preventing shoreline erosion. Occasionally, smooth cordgrass will spread beyond the establishment zone, however, establishment by seed from established plants requires freezing temperatures to stratify the seed and improve seed viability. Without freezing stratification, germination is only about 30%. Freezing weather is a rare occurence in Louisiana coastal marshes. Excessive wave action and storm surges may cause planted strands of smooth cordgrass to revert open water.

Table 6. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	400	3500	6500
Total	**400**	**3500**	**6500**

Figure 10. Plant community growth curve (percent production by month). LA1511, Louisiana Gulf Coast Marshes. Fresh, Brackish, and Saline Marshes of the Louisiana Gulf Coast .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	3	13	23	25	10	7	5	5	5	2	1

State 3
Open Water

Community 3.1
Open Water

This is a terminal state. Once this site has reverted to open water, it is not economically feasible or practical to reclaim it with current technology.

Transition A
State 1 to 2

planting site preparation, vegetative planting

Transition B
State 1 to 3

increased depth of water, total inundation, wave action, storm surge

Transition 2
State 2 to 3

increased depth of water, total inundation, wave action, storm surge

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Grass/Grasslike**			1200–6000	
	smooth cordgrass	SPAL	*Spartina alterniflora*	600–4500	–
	needlegrass rush	JURO	*Juncus roemerianus*	200–2100	–
	saltgrass	DISP	*Distichlis spicata*	150–1500	–
	saltmeadow cordgrass	SPPA	*Spartina patens*	100–900	–
	gulf cordgrass	SPSP	*Spartina spartinae*	0–150	–
	seashore dropseed	SPVI3	*Sporobolus virginicus*	0–100	–
	seashore paspalum	PAVA	*Paspalum vaginatum*	0–100	–
	sedge	CAREX	*Carex*	0–100	–
	common spikerush	ELPA3	*Eleocharis palustris*	0–100	–
	dwarf spikerush	ELPA5	*Eleocharis parvula*	0–100	–
	marsh fimbry	FICA4	*Fimbristylis castanea*	0–100	–
	rush	JUNCU	*Juncus*	0–100	–
Forb					
2	**Forbs**			50–300	
	turtleweed	BAMA5	*Batis maritima*	20–200	–
	bushy seaside tansy	BOFR	*Borrichia frutescens*	5–100	–
	camphor pluchea	PLCA7	*Pluchea camphorata*	0–100	–
	Virginia glasswort	SADE10	*Salicornia depressa*	10–100	–
	annual seepweed	SULI	*Suaeda linearis*	0–50	–
	salt heliotrope	HECU3	*Heliotropium curassavicum*	5–50	–
	dwarf saltwort	SABI	*Salicornia bigelovii*	0–50	–
	saltmarsh false foxglove	AGMA3	*Agalinis maritima*	0–25	–
	wand lythrum	LYLI2	*Lythrum lineare*	0–25	–
	camphor daisy	RAPH2	*Rayjacksonia phyllocephala*	0–25	–
	spiny chloracantha	CHSP11	*Chloracantha spinosa*	0–25	–
	dotted hawthorn	CRPU	*Crataegus punctata*	0–25	–
	herbaceous seepweed	SUMA	*Suaeda maritima*	0–25	–
	eastern annual saltmarsh aster	SYSU5	*Symphyotrichum subulatum*	0–25	–
Shrub/Vine					
3	**Shrub/Vine**			50–300	
	black mangrove	AVGE	*Avicennia germinans*	0–200	–
	Jesuit's bark	IVFR	*Iva frutescens*	0–200	–
	Carolina desert-thorn	LYCA2	*Lycium carolinianum*	0–100	–
	rattlebox	SEPU7	*Sesbania punicea*	0–50	–
	eastern baccharis	BAHA	*Baccharis halimifolia*	0–50	–

Animal community

Animal Community:

The Saline Mineral Marsh ecological site generally has the lowest population and least diversity of terrestrial and avian wildlife species of all the marsh sites because of the lack of plant species diversity and the high concentrations of salt.

The primary wildlife species of the Saline Mineral Marsh are shore birds, song birds, coots and rails. Among the furbearers, muskrats, raccoons, swamp rabbits, minks, and otters are found on this site. Nutria are seldom found on the Saline Marsh site. Predators such as coyotes and bobcats are present on this site.

Migratory ducks arrive in the marsh in October, and stay though the winter until late March before returning to the North. Geese prefer to feed in open areas with very short, tender vegetation. They eat the roots, tubers, and tender leaf growth of plants. Recently burned areas are favored feeding grounds for geese. After heavy grazing by geese, these areas are heavily disturbed and often denuded.

Alligators are not as prevalent in the Saline Mineral Marsh as in other marsh sites. White-tailed deer may occasionally venture onto these saline marsh areas, but they are not frequent users of this site.

Although cattle are grazed in the Saline Mineral Marsh, their numbers are low compared to other marsh sites. Marsh cattle are often subjected to harsh and strenuous conditions. Insects, disease, standing water, submerged grazing areas, unstable and boggy soil conditions, extremely warm temperatures and high humidity, lack of shelter and fresh drinking water sources present unique challenges to cattle grazing in the marsh.

During the summer months, heavy infestations of mosquitoes and deer flies cause discomfort and stress for cattle, and can lead to serious health problems, In the most extreme situations mosquitoes can kill cattle, and are especially hazardous to newborn calves. This is especially true in the saline marshes. For this reason, seasonal grazing is the normal practice on predominantly saline marsh sites. Most cattle are usually moved into the salt marsh in late October or early November and moved to intensively managed pasturelands or fresher marsh sites by the end of May.

Hydrological functions

The hydrology of the saline marsh ecosystem is dominated by tidal exchange with the Gulf of Mexico. Historically, the hydrologic head of natural rivers and bayous, buffered tidal flow to inland marshes. Saline marshes were confined to a narrow band adjacent to the coastline and adjoining bays. The extent of the Saline Mineral Marsh is increasing in area of occurrence as the result of salt water intrusion. Saline marsh sites rarely, if ever, revert to other vegetative communities. They may digress to open water if not properly managed.

Waterways such as canals, trapper ditches, and property line ditches, have been developed to gain access to and within inland marshes which were not accessible by natural riverine systems. The development of deepwater navigation canals, as well as the deepening and realignment of natural riverine systems has also provided a conduit for salt water into previously fresher marsh ecosystems.

Geologic subsidence is another major factor in salt water intrusion into fresher marshes. Many of the navigation features that have been installed restrict overbank flow of sediment during periods of high fresh water flow. These sediments help offset the effects of geologic subsidence.

Duration of tidal inundation is also affected by these geologic and human activities. During periods of low fresh water flow, tidal inundation overpowers fresh water head, and saltwater enters previously fresher marsh ecosystems. Tidal salt water inundation results in the die-off of less salt tolerant plant species. The loss of these plants and their root systems leads to soil loss, and result in the area becoming open water. The hydrologic function of tidal fluctuation is the determining factor in saline marsh ecosystems.

Recreational uses

Hunting, boating, fishing, crabbing, bird watching, and tourism offer recreational opportunities for the public as well as economic opportunities for landowners in the marsh. Duck and goose hunting are prevalent in this area. The marsh sites are preferred areas for resident and migratory waterfowl, songbirds, shore birds, and wading birds. Hunting camps and hunting clubs are common in the marsh. Commercial enterprises offer air boat excursions and marsh tours in some areas. Recreational boating and fishing in adjacent water bodies is prevalent. In recent years, bird watching has become increasingly popular with the public. Bird watching potential can be enhanced by constructing observation platforms, boardwalks, etc. to provide access for visitors.

Other products

Trappers often use marsh sites to harvest mammals which are valued for their pelts. The marsh provides habitat for numerous furbearers such as muskrats, raccoons, minks, otters, bobcats, and coyotes. Nutria are trapped and harvested as a food source for
alligators being produced on alligator farms.

Alligators are harvested for their hides and meat. Alligator eggs are removed from their nests and provided to alligator farms where the eggs are hatched and alligators are produced commercially.

Marsh vegetation produces large amounts of detritus which provides food and shelter for numerous aquatic organisms. Phytoplankton production in the nutrient rich estuaries provides the basis for the Gulf Coast fishing industry. Smooth cordgrass colonies trap sediments and nutrients and provide nursery areas for the juvenile and larval forms of numerous species of fish and crustaceans including shrimp, crab, oysters, crawfish, menhaden, croaker, bay anchovy, drum, flounder, sea trout, and other species.

Inventory data references

Production and Composition Data for Native Grazing Lands (SCS-RANGE-417) clipping data was reviewed to determine species occurrence and production on soils that are representative of the Saline Mineral Marsh ecological site. In addition vegetation transect data from Lafourche, Terrebonne, Cameron, and Vermillion Parishes collected from 1991-1995 was used to determine species occurrence and production on typical Saline Mineral Marsh ecological sites.

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Johanna Pate, State Rangeland Management Specialist, USDA Natural Resources Conservation Service, Alexandria, La.

Mike Stellbauer, Zone Rangeland Management Specialist, USDA Natural Resources Conservation Service, Bryan, Tx

Jerry J.Daigle, State Soil Scientist, USDA Natural Resources Conservation Service, Alexandria, La

Gerald Trahan, Soil Scientist, USDA Natural Resources Conservation Service, Carencro, La

Mike Lindsey, Soil Scientist, USDA Natural Resources Conservation Service, Carencro, La

Contributors

Jack R. Cutshall And Dan M. Caudle

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	Johanna Pate, Rangeland Management Specialist, NRCS, Alexandria, La

Contact for lead author	318-473-7808
Date	09/22/2010
Approved by	Johanna Pate
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** N/A

2. **Presence of water flow patterns:** Daily tidal exchange

3. **Number and height of erosional pedestals or terracettes:** N/A

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Expect less than 30% bare ground

5. **Number of gullies and erosion associated with gullies:** N/A

6. **Extent of wind scoured, blowouts and/or depositional areas:** N/A

7. **Amount of litter movement (describe size and distance expected to travel):** Daily tidal activity removes virtuallyy all litter from site

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Soil surface is subject to sheet erosion due to daily tidal activity. Shoreline is subject to erosion due to excessive wave action.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** 0-6 inche very dark gray peat, 6-12 inches dark gray mucky clay. Coarse fibers, roots, and mineral soil. SOM 2% to 25%

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** N/A

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** N/A

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant: Warm-season grasses and grass-likes

    Sub-dominant: Sod forming grasses

    Other: Perennial forbs, shrubs

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Perennial grasses will naturally exhibit a minor amount (less than 5%) of senescence and some mortality every year.

14. **Average percent litter cover (%) and depth (in):** Litter and detritus is flushed away with each high tide as the water recedes.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 1,000 to 13,000 pounds per acre

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** N/A

17. **Perennial plant reproductive capability:** All perennial species should be capable of reproducing every year unless disrupted by catastrophic events occuring immediately prior to, or during the reproductive phase.