

Ecological site R151XY010LA

Sandy Chenier

55-64 PZ

Last updated: 3/24/2025
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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.

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 ridges that generally parallel the Gulf of America coast marsh. The soils formed in coastal beach deposits of shell and sand. Slopes range from 0 to 3 percent. Brief flooding occurs rarely. Gulf cordgrass dominates this site. Little bluestem, switchgrass, Indiangrass, marshhay cordgrass, knotroot bristlegrass, and longspike Tridens are also found in smaller amounts. The soils are loamy throughout in low-lying areas of the inland side of the geologic beach ridges along the gulf.

Associated sites

R151XY002LA	Saline Marsh 55-64 PZ Saline Mineral Marsh frequently occurs adjacent to the Sandy Chenier site.
R151XY005LA	Brackish Firm Mineral Marsh 55-64 PZ Brackish Firm Mineral Marsh frequently occurs adjacent to the Sandy Chenier site
R151XY009LA	Fresh Firm Mineral Marsh 60-64 PZ Fresh Firm Mineral Marsh occasionally occurs adjacent to the Sandy Chenier site.

Similar sites

R151XY006LA	Clayey Chenier Brackish Marsh 55-64 PZ Clayey Chenier Brackish Marsh has many of the same plant species and similar production to the Sandy Chenier 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.
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 due to less annual rainfall.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

These areas are on low ridges that generally parallel the gulf coast marsh. The soils formed in coastal beach deposits of shell and sand. Slopes range from 0 to 3 percent. Brief flooding occurs rarely.

Table 2. Representative physiographic features

Landforms	(1) Beach ridge
Flooding duration	Brief (2 to 7 days)
Flooding frequency	Rare
Ponding frequency	None
Elevation	0 m
Slope	0 %
Ponding depth	0 cm
Water table depth	80 – 180 cm

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 days, increasing in length from north to south.

Table 3 Representative climatic features

Frost-free period (average)	370 days
Freeze-free period (average)	370 days
Precipitation total (average)	1,650 mm

Influencing water features

The gulf is the influencing water feature on this site.

Soil features

Soils on this site include Cheniere, Hackberry and Peveto. These soils formed in shell and sand beach deposits. They are on low, narrow ridges that generally parallel the gulf coast shoreline. Small shell fragments on and in the surface range from 0 to 40 percent. Shell fragments in the underlying material ranges from 5 to 90 percent.

Taxonomic Classification:

Cheniere-Cartonitic, hyperthermic Typic Udipsamments

Hackberry - Sandy, mixed, hyperthermic aeric endoaquepts

Peveto - Mixed, hyperthermic Typic Udipsamments

The parent material kind is sandy beach sand, loamy beach sand and shell beach sand. The parent material origin is chenier plain marsh and shell fragments and sand beach deposits.

Table 4. Representative soil features

Surface texture	(1) Loamy fine sand (2) Sand
Drainage class	Somewhat poorly drained to somewhat excessively drained
Permeability class	Moderately rapid to rapid
Soil depth	180 – 250 cm
Surface fragment cover <=3"	Not specified

Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	5.08 – 12.7 cm
Calcium carbonate equivalent (0-101.6cm)	0 – 70 %
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	0 – 20
Soil reaction (1:1 water) (0-101.6cm)	5.6 – 10
Subsurface fragment volume <=3" (Depth not specified)	Not specified
Subsurface fragment volume >3" (Depth not specified)	Not specified

Ecological dynamics

Sandy ridges developed when the westernmost deltaic lobes were being formed by the Mississippi River. Deposits from onshore currents created beaches as the gulf was receding. Sandy Chenier ecological sites are geologic remnants of those beaches and occur as narrow bands running parallel to the gulf. These sites are well drained and occur at elevations above Mean High Tide, usually less than 5 feet in height. The plant communities that occur on this site are adapted to much drier conditions than typical marsh vegetation. Remnant areas of vegetation suggest that tallgrass prairie grasses and gulf cordgrass were the dominant plant species on the Sandy Chenier ecological site prior to European colonization.

The proximity to the gulf makes this site susceptible to degradation by natural and human induced actions. Hurricanes and tropical storms can destroy or alter plant communities in a very short period of time as a result of storm surge, overwash and/or increased salinity.

Grazing by cattle, furbearers, and geese can adversely affect vegetation on this site if not properly managed. Wildlife grazing pressure presents a management challenge because it is not possible to consistently control the numbers and movements of most wildlife species. Burning enhances the quality, availability, and palatability of the vegetation. This can cause livestock and/or wildlife to concentrate on the burned area which results in continual overgrazing. This site is a natural concentration point for cattle and wildlife since it is drier and at a higher elevation. It is used as a bedding ground and as an area to find some relief from higher concentrations of mosquitoes in the adjacent wetter marsh sites.

Because of its elevation, it is the preferred site for human activities including transportation and utilities, as well as oil and gas exploration and infrastructure, residential and industrial development, etc. Some areas have been converted to tame pasture and hayland. As a result of these activities, most of this site has been disturbed or converted to other uses. Undisturbed remnants of pristine vegetation are rare.

European man and accompanying domestic livestock, have inhabited this site for about two centuries. As a result of intensive use by both humans and livestock, relict vegetation is extremely rare. Only remnants of the vegetation found in community phase 1.1 and 2.1 can be found.

State and transition model

Figure 3. Sandy Chenier

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
Grass/Grasslike					
1	Grasses/Grasslike			3363-6725	
	switchgrass	PAVI2	<i>Panicum virgatum</i>	336-897	–
	Indiangrass	SONU2	<i>Sorghastrum nutans</i>	168-673	–
	eastern gamagrass	TRDA3	<i>Tripsacum dactyloides</i>	112-673	–
	gulf cordgrass	SPSP	<i>Spartina spartinae</i>	448-673	–
	big bluestem	ANGE	<i>Andropogon gerardii</i>	56-673	–
	saltmeadow cordgrass	SPPA	<i>Spartina patens</i>	448	–
	little bluestem	SCSC	<i>Schizachyrium scoparium</i>	90-448	–
	seashore paspalum	PAVA	<i>Paspalum vaginatum</i>	224-336	–
	common reed	PHAU7	<i>Phragmites australis</i>	112-224	–
	seashore dropseed	SPVI3	<i>Sporobolus virginicus</i>	112-224	–
	broomsedge bluestem	ANVI2	<i>Andropogon virginicus</i>	224	–
	sedge	CAREX	<i>Carex</i>	0-112	–
	rush	JUNCU	<i>Juncus</i>	0-112	–
	hairawn muhly	MUCA2	<i>Muhlenbergia capillaris</i>	0-112	–
	longtom	PADE24	<i>Paspalum denticulatum</i>	45-112	–
	Florida paspalum	PAFL4	<i>Paspalum floridanum</i>	0-112	–
	longspike tridens	TRST2	<i>Tridens strictus</i>	45-112	–
	bitter panicgrass	PAAM2	<i>Panicum amarum</i>	0-67	–
	brownseed paspalum	PAPL3	<i>Paspalum plicatulum</i>	56	–
	marsh bristlegass	SEPA10	<i>Setaria parviflora</i>	56	–
	red lovegrass	ERSE	<i>Eragrostis secundiflora</i>	45	–
	gulfdune paspalum	PAMO4	<i>Paspalum monostachyum</i>	22-45	–
	torpedo grass	PARE3	<i>Panicum repens</i>	0-22	–
	thin paspalum	PASE5	<i>Paspalum setaceum</i>	0-22	–
	rosette grass	DICHA2	<i>Dichanthelium</i>	0-22	–
Forb					
2	Forbs			11-168	
	goldenrod	SOLID	<i>Solidago</i>	17-50	–
	Indian blanket	GAPU	<i>Gaillardia pulchella</i>	11-45	–
	Cuman ragweed	AMPS	<i>Ambrosia psilostachya</i>	6-22	–
	partridge pea	CHFA2	<i>Chamaecrista fasciculata</i>	6-17	–
	yankeeweed	EUCO7	<i>Eupatorium compositifolium</i>	11	–
	Illinois bundleflower	DEIL	<i>Desmanthus illinoensis</i>	2-6	–
	powderpuff	MIST2	<i>Mimosa strigillosa</i>	2-6	–

Shrub/Vine					
3	Shrubs			6-56	
	live oak	QUVI	<i>Quercus virginiana</i>	0-28	–
	sugarberry	CELA	<i>Celtis laevigata</i>	0-17	–
	Carolina desert-thorn	LYCA2	<i>Lycium carolinianum</i>	6-11	–

Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 2.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Animal community

Deer, raccoons and other small mammals are transient users of the Sandy Chenier ecological site. The site is also used as a bedding area because it is higher and drier than surrounding sites. It may also provide escape cover for wildlife species in areas which have a significant amount of shrubs. Predators such as coyotes are present on this site. Geese prefer this site as a landing area because it is higher and drier than the surrounding areas and frequently consists of low growing vegetation. They may feed on seashore paspalum and the shoots of gulf cordgrasses in open areas with very short, tender vegetation. Recently burned areas are favored feeding grounds for geese. After seasonal grazing by geese, these areas are heavily disturbed and often denuded. This site is a natural concentration point for cattle because of its higher elevation and drier conditions. It is used as an area to escape high concentrations of mosquitoes in the adjacent wetter marsh sites.

Hydrological functions

Of all the marsh sites, the Sandy Chenier ecological site is the least affected by natural surface hydrology. However, transportation, utilities, and oil and gas industry infrastructure can cause changes in hydrology that impact this site. By concentrating water against the cheniers and ridges or cutting through them.

Recreational uses

Recreational use of this site is incidental and is generally associated with hunting on adjacent sites. This site provides limited opportunities for outdoor activities.

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 Sandy Chenier ecological site. In addition vegetation transect data from Cameron and Vermillion Parishes collected from 1991-1995 was used to determine species occurrence and production on typical Sandy Chenier ecological sites

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Approval

Matthew Duvall, 3/24/2025

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)	
Contact for lead author	
Date	08/25/2026
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. Number and extent of rills:

2. Presence of water flow patterns:

3. Number and height of erosional pedestals or terracettes:

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

5. Number of gullies and erosion associated with gullies:

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

7. Amount of litter movement (describe size and distance expected to travel):

8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):

9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

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

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

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:

Sub-dominant:

Other:

Additional:

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):

14. Average percent litter cover (%) and depth (in):

15. Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):

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:

17. Perennial plant reproductive capability:
