

## SOIL AND PLANT SCIENCE DIVISION

# Technical Soil Services

## South Central Soil Survey Region

### **Nacogdoches, Texas and Ruston, Louisiana Major Land Resource Area (MLRA) Soil Survey Office (SSO)**

## **Marsh Sampling in Preparation for the 2024 Southern Region National Cooperative Soil Survey Conference**

### **Purpose**

Proposed field tour sites were visited for the 2024 Southern Region National Cooperative Soil Survey Conference were visited and sampled the week of October 30-November 3, 2023. Staff collaborating on this effort are Louisiana staff Mitchell Mouton, State soil scientist, Brandon Waltman, assistant State soil scientist, Gavin Faulk, resource soil scientist, and Mike Lindsey, ACES (Agriculture Conservation Experienced Services) soil scientist.

Regional Staff include (from Loxley, Alabama) Joey Koptis, MLRA soil survey leader; Jared Cianciolo, soil scientist; Sandy Page, soil scientist; Jerome Langlinais, retired MLRA soil survey leader; Rob Tunstead, senior soil scientist for [Coastal Zone Soil Survey](#), Greg Taylor, senior soil scientist for Special Projects, and Meg Rinaudo soil scientist Ruston, Louisiana.

### **Background**

The Southern Region National Cooperative Soil Survey Conference will be held May 20-24, 2024, in Lafayette, Louisiana. During the conference, field tours will showcase the geomorphology and soil systems found along the Gulf Coast. [Louisiana's wetlands](#) represent about 40 percent of the wetlands of the continental United States, but also account for about 80 percent of the losses of this important biome from coastal erosion. The Mississippi River and its meandering channel is historically responsible for forming the foundation of the coastal marshes. There are several distinct types of marsh, saline, brackish, and freshwater. Freshwater marshes are interior marshes. The brackish marshes are found along the gulf, and they protect the freshwater marshes from sea water intrusion. The saline marsh appears along the fringe of the Gulf Coast in the southeastern and southwestern corners of Vermillion Parish. The marshes in Cameron Parish include soft or very fluid, organic and mineral soils, and slightly fluid or firm, mineral soils. These soils are ponded most of the time and are frequently flooded.



Recently, much of Louisiana has been under a severe drought which has had devastating effects on the marsh ecosystems. [Saltwater intrusion](#), widespread fires, and drought stress are just a few of the consequences.

## Key Outcomes

At each site a complete soil pedon description was recorded and samples collected for lab analysis. This field work week familiarized conference organizers with the soils of the area and provided an opportunity for developing the field tour settings. Riveting discussion on soils and ecosystems was shared by experienced scientists as plans for the tour were solidified. The soil pits and/or soil cores will serve as exhibits for conference attendees to become familiar with the marsh soils of Louisiana.



Figure 1.—Mitchell Mouton, Jerome Langlinais, and Joey Koptis discussed the soil.

The first sample site was south of the Cameron Prairie National Wildlife Refuge Visitor Center in an [Allemands](#) soil. A soil description was taken, and samples were collected.



Figure 2.—Vibracore sample open and ready to be described.

The second site was the Rockefeller Wildlife Refuge where the target soil was Scatlake, which is accessible by boat. A crew loaded on the airboat and set off to the sample with the vibracore equipment. The core was split and described at the office.



Figure 3.—Mudflats visible below the water.

The third site was a pasture west of highway 82 near Pecan Island. The soil was mapped [Gueydan](#). The Gueydan series was fresh water coastal marsh that has been protected from flooding by a system of levees and drained with pumps. These areas are commonly called pump offs. The surface of both points had a substantial zone of compaction and very firm soil, which could be contributed to the drought. The second pit had enough shells in two horizons (Figure 4) to tag the textures with a shelly modifier.

In total the team targeted three soils, completed five pedon descriptions, collected two vibracore tubes, and sampled four points.



Figure 4.—Gueydan soil. Top right is the surface horizon and top left is the bottom.

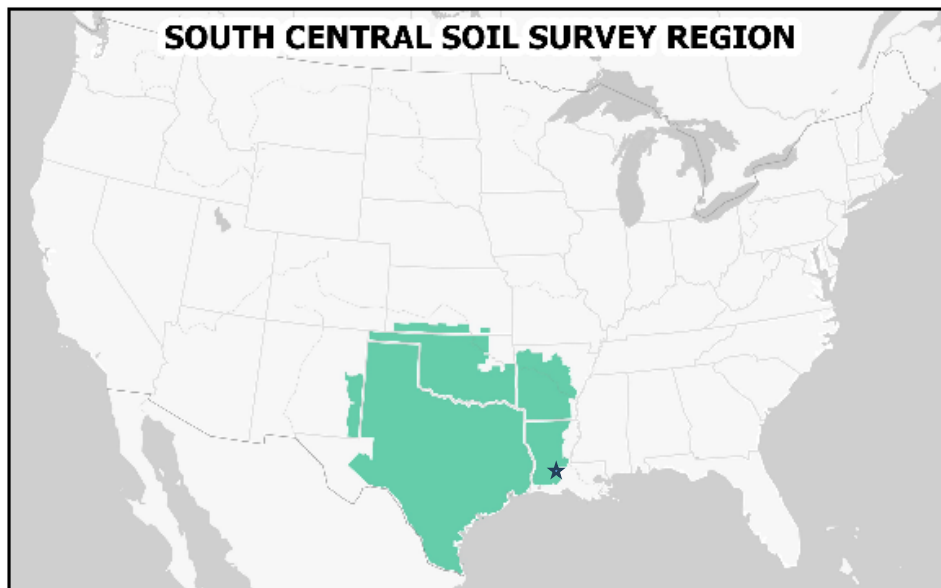


Figure 5.—Map of sampling location.