United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Louisiana Agricultural Experiment Station and Louisiana Soil and Water Conservation Committee

Soil Survey of Vermilion Parish, Louisiana

How To Use This Soil Survey

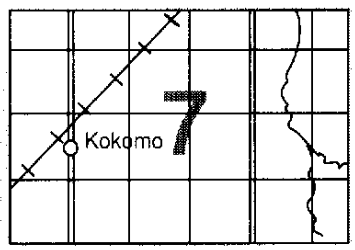
General Soil Map

The general soil map, which is the color map preceding the detailed soil maps, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

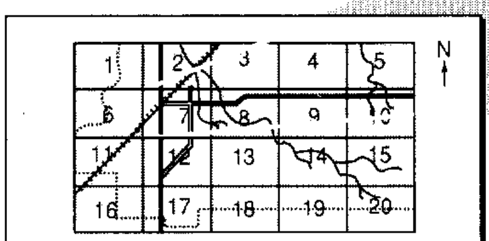
Detailed Soil Maps

The detailed soil maps follow the general soil map. These maps can be useful in planning the use and management of small areas.



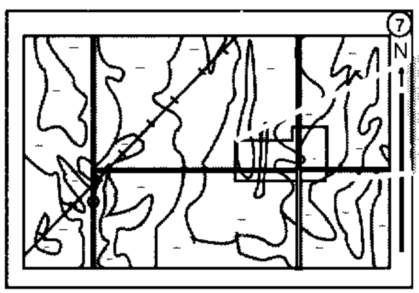
MAP SHEET

To find information about your area of interest, locate that area on the **Index to Map Sheets**, which precedes the soil maps. Note the number of the map sheet, and turn to that sheet.



INDEX TO MAP SHEETS

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Index to Map Units** (see Contents), which lists the map units by symbol and name and shows the page where each map unit is described.



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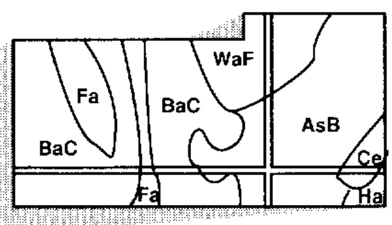

AREA OF INTEREST

NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Summary of Tables** shows which table has data on a specific land use for each detailed soil map unit. See **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service, formerly the Soil Conservation Service, has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1987. Soil names and descriptions were approved in 1988. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1987. This soil survey was made cooperatively by the Natural Resources Conservation Service, the Louisiana Agricultural Experiment Station, and the Louisiana Soil and Water Conservation Committee. It is part of the technical assistance furnished to the Vermilion Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

All programs and services of the Natural Resources Conservation Service are offered on a nondiscriminatory basis, without regard to race, color, national origin, religion, sex, age, marital status, or handicap.

Cover: Harvest of rice on Crowley silt loam, 0 to 1 percent slopes. Rice is a major crop in Vermilion Parish.

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Issued May 1996

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Foreword

This soil survey contains information that can be used in land-planning programs in Vermilion Parish. It contains predictions of soil behavior for selected land uses. The survey also highlights limitations and hazards inherent in the soil, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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Soil Survey of
Vermilion Parish, Louisiana

Soils surveyed by Kenneth Murphy, Natural Resources Conservation Service, and Ralph Libersat, Louisiana Soil and Water Conservation Committee

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
Louisiana Agricultural Experiment Station and Louisiana Soil and Water Conservation Committee

Vermilion Parish is in the southwestern part of Louisiana (fig. 1). It is bordered on the south by the Gulf of Mexico, on the east by Vermilion Bay and Iberia Parish, on the north by Acadia, Jefferson Davis, and Lafayette Parishes, and on the west by Cameron Parish. Abbeville, the parish seat, is in the northeastern corner of the parish and is about 70 miles southwest of Baton Rouge. The parish is chiefly rural. In 1987 it had a population of 54,558. It has a total area of 1,115,531 acres. About 783,360 acres is land, and 332,171 acres is large water areas consisting of lakes, bays, and streams. The elevation ranges from sea level near the Gulf of Mexico to about 25 feet above mean sea level near the parish boundary north of Abbeville. The vast expanses of marshes in the parish are at sea level. Several areas of marsh, however, are drained and are 1 to 2 feet below sea level.

Most of the land in Vermilion Parish is used as marshes or for agricultural purposes. About 50 percent of the land is marshland, and 38 percent is used as cropland or pasture. There is no significant trend towards changing land use.

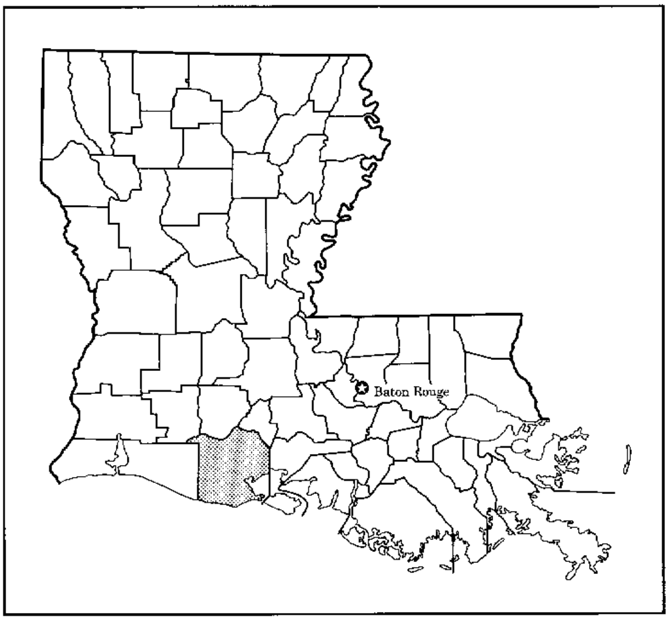

Figure 1.—Location of Vermilion Parish in Louisiana.

The soils of the parish formed in decomposed plant remains, marine sediments, alluvium, or loess. The main physiographic features are the uplands, the Gulf Coast Prairies, the flood plains and backswamps along streams, and the marshes and ridges along the coast of the Gulf of Mexico.

The uplands make up about 20 percent of the land area in the parish. Some geographers consider them to be part of the Gulf Coast Prairies. The soils in the uplands are level to gently undulating. They extend across the northeastern part of the parish. These soils formed in loess and are silty throughout. They are mainly used for cultivated crops, pasture, or homesites. Wetness and the hazard of erosion are limitations affecting land use in many areas. Drainage and erosion control are the major concerns.

The Gulf Coast Prairies make up about 30 percent of the land area. The soils on these prairies are level, nearly level, or very gently sloping. They extend across the northwestern and central parts of the parish. Most of these soils have a loamy surface layer and a clayey subsoil. They are mainly used for cultivated crops or pasture. Wetness is a limitation affecting land use in most areas. Surface drainage is the major concern.

The marshland makes up about 42 percent of the total land area. The soils on marshland are level. They extend across the southern part of the parish. They are bordered on the south by the Gulf of Mexico and on the east by Vermilion Bay. A series of low elongated ridges, or cheniers, are in the southwestern part of this area. The loamy and clayey soils on the cheniers are mainly used as pasture or rangeland.

The soils in marshes support native vegetation. They formed in decomposed plant remains or mineral sediments. Most of the acreage of these soils is used as wildlife habitat or rangeland. The brackish and saline marshes are part of the Louisiana coastal estuarine complex that supports marine life in the Gulf of Mexico.

Descriptions, names, and delineations of soils in this soil survey do not fully agree with those on soil maps for adjacent parishes. Differences are the result of more information on soils, modifications in series concepts, and variations in the intensity of mapping or in the extent of soils within the survey area.

General Nature of the Parish

This section discusses climate, agriculture, transportation, water resources, and history and development.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Vermilion Lock, Louisiana, in the period 1951 to 1981. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on length of the growing season.

In winter, the average temperature is 52 degrees F and the average daily minimum temperature is 42 degrees. The lowest temperature on record, which occurred at Vermilion Lock on January 11, 1962, is 12 degrees. In summer, the average temperature is 81 degrees and the average daily maximum temperature is 89 degrees. The highest recorded temperature, which occurred at Vermilion Lock on July 15, 1971, is 101 degrees.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 59 inches. Of this, 35 inches, or about 60 percent, usually falls in April through September. The growing season for most crops falls within this period. In 2 years out of 10, the rainfall in April through September is less than 28 inches. The heaviest 1-day rainfall during the period of record was 9.90 inches at Vermilion Lock on June 11, 1975. Thunderstorms occur on about 74 days each year.

Snowfall is rare. In 99 percent of the winters, there is no measurable snowfall. In 1 percent, the snowfall, usually of short duration, is less than 1 inch.

The average relative humidity in midafternoon is about 60 percent. Humidity is higher at night, and the average at dawn is about 90 percent. The sun shines 80 percent of the time possible in summer and 50 percent in winter. The prevailing wind is from the south. Average windspeed is highest, 11 miles per hour, in spring.

Agriculture

Vermilion Parish has the natural resources to support a large agricultural economy. Early settlers grew a variety of crops and raised livestock. During the early 1800's, sugarcane was a main cash crop, but its importance to the economy of the parish has since diminished. In 1986, about 5,500 acres of sugarcane was harvested. It had an estimated market value of about 2.6 million dollars. Historically, corn was also an important crop in the parish. Its acreage has also decreased. In 1986, only about 1,200 acres of corn was planted.

Soybeans were first planted in the parish in 1926. In 1982, the acreage of soybeans had increased to its maximum extent of 112,250 acres and exceeded the acreage of rice for the first time. The acreage of soybeans decreased steadily until 1970, when only 12,000 acres was harvested. It has since increased, and in 1986 about 92,500 acres of soybeans had a value of 11.4 million dollars.

Rice is presently the main cash crop in Vermilion Parish. In 1986, more than 68,000 acres of rice was planted and had a value of 24.5 million dollars. The average annual yield of rice in the parish is 30 barrels per acre.

Beef cattle have always been an important part of the marketed farm income in Vermilion Parish. In 1986, about 900 farms raised 38,800 head of beef cattle, which had a market value of 8.5 million dollars. In 1986, about 18,000 acres of crawfish ponds produced an average of 700 pounds of crawfish per acre. In 1986, the value of farm products produced in the parish was estimated at 80,831,607 dollars. About 55 percent of this amount came from crops, 32 percent from fisheries (including the production of menhaden, alligator, shrimp, crabs, fish, and crawfish), and 13 percent from livestock.

The present trend in Vermilion Parish indicates that the acreages of rice and soybeans will remain about the same. The acreage used for crawfish production, however, is expected to increase.

Transportation

Vermilion Parish is located at the crossroads of waterborne commerce in southwestern Louisiana. The Vermilion River and the Freshwater Bayou Canal provide a complete north-south route through the parish. They both intersect the Intracoastal Waterway, which is the east-west artery connecting the parish to the Gulf Coast and to seaports at Lake Charles, Baton Rouge, and New Orleans.

The parish is linked to Interstate 10 by U.S. Highway 167, the most heavily traveled road in the parish. Other significant improved roads are Louisiana Highways 13 and 14, the main east-west routes, and Louisiana Highway 82, a northeast-southwest route from Abbeville to Cameron Parish.

The municipal airport at Abbeville, completed in 1960, serves private and small commercial planes. It is used for oil-related industries and for many of the local farming operations. Several heliports are located in the intracoastal area, and several private airstrips are at Kaplan, Gueydan, and Leroy.

Water Resources

Darrell D. Carlson, Chief, Hydrologic Surveillance Section, Water Resources Division, U.S. Department of the Interior, helped prepare this section.

The Vermilion River, which flows in a southerly direction across the eastern part of the parish, is the major source of surface water in Vermilion Parish. In 1982 water from the Atchafalaya River was diverted into the Teche-Vermilion system to supplement the low flows of Bayou Teche and the Vermilion River during the period March through September. The amount of water diverted from the Atchafalaya River during these 7 months is approximately 1,000 cubic feet per second, or 423,000 acre-feet. Some of the diverted water enters into the Vermilion River through Bayou Fusilier near Arnaudville. The average annual discharge of Bayou Fusilier is 206,500 acre-feet per year (1985-86). Also, flow from Bayou Teche is diverted into the Vermilion River through the Ruth Canal. The average annual discharge of the Ruth Canal is 204,300 acre-feet per year (1983-86). Before 1983, it was 83,000 acre-feet per year (1960-82). At Lafayette the average annual discharge of the Vermilion River is 723,700 acre-feet per year (1983-86). During the period 1968 to 1982, it was approximately 513,200 acre-feet per year *(10)*.

Bayou Queue de Tortue, which forms the northwestern boundary of Vermilion Parish, is another source of surface water. The average flow of this bayou was 203,000 acre-feet per year (1986). The bayou is a tributary to the Mermentau River, which forms the western boundary of the parish. The average flow of the Mermentau River is 1,786,000 acre-feet per year (1985-86). About 402 million gallons of water per day is taken from this river, and about 200 million gallons per day of this water is used within Vermilion Parish *(19)*.

The parish includes several large coastal bodies of water, including Vermilion Bay, Lake Arthur, and White Lake. The Gulf of Mexico forms the southern boundary of the parish.

About 307.47 million gallons of water per day is drawn from surface water sources in Vermilion Parish *(19)*. Of this amount, 288 million gallons per day is used to irrigate rice. The remaining 19.47 million gallons per day is used for aquaculture, livestock, and industrial purposes.

Sources of fresh ground water in Vermilion Parish are the Abbeville unit, the upper sand unit, and the lower sand unit of the Chicot Aquifer system *(10)*. The three units also contain salt water. The maximum depth to fresh ground water in the parish is about 800 feet below land surface.

The Abbeville unit generally consists of fine to sandy silt that grades to sand and gravel with increasing depth. The unit ranges in thickness from 100 to 250 feet and dips toward the south. It is recharged directly from the Vermilion River because water levels have been drawn down to below the river stages. Water quality in the Abbeville unit reflects the quality of water in the Vermilion River because of the direct hydraulic connection. The unit contains some localized areas of salt water as the result of the inland movement of sea water in the river during high tides. An intermittent recharge of brackish water into the aquifer during the high tides is possible. Water from the Abbeville unit is primarily used for irrigation.

The upper sand unit of the Chicot Aquifer system underlies and generally is separated from the Abbeville unit by a thin clay lense. Some areas do not have this lense. This unit consists of fine to coarse sand and gravel and commonly contains one or more thin clay lenses. The thickness of the unit ranges from 350 to 550 feet. Like the Abbeville unit, the upper sand unit dips and is thicker toward the south. The water in the upper sand unit is mostly a type of calcium magnesium bicarbonate. In Vermilion Parish, this unit has fresh ground water to a maximum depth of about 600 feet. Water levels range from mean sea level to about 20 feet below mean sea level. Water from this unit is used primarily for irrigation, industrial purposes, or municipal supplies.

The lower sand unit of the Chicot Aquifer system underlies the upper sand unit. Supplies of fresh ground water in this unit are limited to areas north of Abbeville. Because of the limited extent of fresh ground water, this unit is not considered a major source of ground water in Vermilion Parish.

History and Development

Vermilion Parish was established by the Louisiana Legislature in 1844. It was formed from the Attakapas District, 1 of 12 districts within the Territory of Orleans. The seat of government was formally established in 1846 at Abbeville.

When the early white settlers arrived in Vermilion Parish, the area was inhabited mainly by the Attakapa Indians. These early settlers included primarily Acadian exiles from Nova Scotia, a few English speaking migrants from the Atlantic Seaboard, and some Spaniards from the Canary Islands. The fertile land, abundant wildlife, and tall prairie grasses attracted the settlers.

Agriculture was important in the early history of Vermilion Parish. Sugarcane and rice quickly became the main cash crops. The current economy of the parish, however, is more diverse. Agriculture remains the main enterprise, but the oil and gas industry and the fishing industry also contribute significantly to the economy.

How This Survey Was Made

This survey was made to provide information about the soils in the survey area. The information includes a description of the soils and their location and a discussion of the suitability, limitations, and management of the soils for specified uses. Soil scientists observed the steepness, length, and shape of slopes; the general pattern of drainage; the kinds of crops and native plants growing on the soils; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material from which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils in the survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil is associated with a particular kind of landscape or with a segment of the landscape. By observing the soils in the survey area and relating their position to specific segments of the landscape, a soil scientist develops a concept, or model, of how the soils were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. The system of taxonomic classification used in the United States is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area are generally collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot assure that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Map Unit Composition

A map unit delineation on a soil map represents an area dominated by one major kind of soil or an area dominated by two or three kinds of soil. A map unit is identified and named according to the taxonomic classification of the dominant soil or soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural objects. In common with other natural objects, they have a characteristic variability in their properties. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of soils of other taxonomic classes. Consequently, every map unit is made up of the soil or soils for which it is named and some soils that belong to other taxonomic classes. In the detailed soil map units, these latter soils are called inclusions or included soils. In the general soil map units, they are called soils of minor extent.

Most inclusions have properties and behavioral patterns similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting (similar) inclusions. They may or may not be mentioned in the map unit descriptions. Other inclusions, however, have properties and behavior divergent enough to affect use or require different management. These are contrasting (dissimilar) inclusions. They generally occupy small areas and cannot be shown separately on the soil maps because of the scale used in mapping. The inclusions of contrasting soils are mentioned in the map unit descriptions. A few inclusions may not have been observed and consequently are not mentioned in the descriptions, especially where the soil pattern was so complex that it was impractical to make enough observations to identify all of the kinds of soils on the landscape.

The presence of inclusions in a map unit in no way diminishes the usefulness or accuracy of the soil data. The objective of soil mapping is not to delineate pure taxonomic classes of soils but rather to separate the landscape into segments that have similar use and management requirements. The delineation of such landscape segments on the map provides sufficient information for the development of resource plans, but onsite investigation is needed to plan for intensive uses in small areas.

General Soil Map Units

The general soil map at the back of this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils and some minor soils. It is named for the major soils. The soils making up one unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or a building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

The soils in the survey area vary widely in their potential for major land uses. Table 4 shows the extent of the map units shown of the general soil map. It lists the potential of each, in relation to that of the other map units, for major land uses and shows soil properties that limit use. Soil potential ratings are based on the practices commonly used in the survey area to overcome soil limitations. These ratings reflect the ease of overcoming the limitations. They also reflect the problems that will persist even if such practices are used.

Each map unit is rated for *cultivated crops, pasture, urban uses,* and *recreational areas.* Cultivated crops are those grown extensively in the survey area. Pasture refers to areas of native or improved grasses. Urban uses include residential, commercial, and industrial developments. Intensive recreational areas are campsites, picnic areas, ballfields, and other areas that are subject to heavy foot traffic.

The boundaries of the general soil map units in Vermilion Parish were matched with those of the previously published surveys of Acadia, Iberia, and Lafayette Parishes of Louisiana. In a few places, however, the names of the map units differ. This difference resulted mainly from changes in soil series concepts, differences in map unit design, and changes in soil patterns near survey area boundaries.

Soils on Uplands

These are mainly level to gently undulating, somewhat poorly drained and poorly drained soils that are loamy throughout.

These soils make up about 20 percent of the parish. Most of the acreage is used for cultivated crops. A small acreage is used for pasture or urban and built-up areas. Seasonal wetness is the main limitation. Erosion and flooding are the main hazards affecting agricultural uses. Medium fertility is a minor limitation. The main hazards and limitations affecting urban uses are flooding, wetness, slow permeability, erosion, a moderate shrink-swell potential, and low strength on sites for roads and streets.

1. Patoutville-Frost

Level to gently undulating, somewhat poorly drained and poorly drained soils that are loamy throughout

This map unit consists of soils on broad, slightly convex ridges, on broad flats, on short side slopes, and along drainageways in the uplands. Numerous shallow swales and drainageways cross areas of these soils. Slopes range from 0 to 3 percent.

This map unit makes up about 11 percent of the parish. It is about 67 percent Patoutville soils, 18 percent Frost soils, and 15 percent soils of minor extent.

The somewhat poorly drained Patoutville soils are on broad, low, slightly convex ridges and short side slopes. They are level to gently undulating. They have a surface layer of brown or dark brown silt loam. The subsurface layer is light brownish gray, mottled silt loam. The subsoil is silty clay loam. The upper part is dark grayish brown and mottled, the next part is grayish brown and mottled, and the lower part has gray and yellowish brown mottles.

The poorly drained Frost soils are on broad flats, in swales, and along drainageways. They are level. They have a surface layer of dark grayish brown, mottled silt loam. The subsurface layer is gray, mottled silt loam. The subsoil is dark gray, mottled silty clay loam and gray silt loam in the upper part and gray, mottled silty clay loam in the lower part.

Of minor extent in this map unit are Coteau soils on ridgetops and side slopes; Crowley soils on broad ridges, the side slopes of low ridges, and broad flats; Dundee soils on natural levees of distributary channels of the Vermilion River; and Jeanerette soils on broad flats.

Most areas of this map unit are used for cultivated crops. Soybeans and rice are the main crops. A small acreage is used for pasture or homesites.

The soils in this map unit are moderately well suited to cultivated crops and well suited to pasture. Wetness is the main limitation, and medium fertility is a minor limitation. Also, erosion is a moderate hazard in very gently sloping areas. Areas of the Frost soils that are occasionally flooded are poorly suited to cultivated crops and moderately well suited to pasture. A surface drainage system and additions of lime and fertilizer are needed for optimum crop and forage production.

The Patoutville soils are moderately well suited to building site development, sanitary facilities, and intensive recreational uses, and the Frost soils are poorly suited. The wetness, a moderate shrink-swell potential, low strength on sites for roads and streets, and slow permeability are the main limitations. Flooding is a hazard in areas of the Frost soils.

2. Coteau-Frost

Level, very gently sloping, and gently undulating, somewhat poorly drained and poorly drained soils that are loamy throughout

This map unit consists of soils on uplands. These soils are mainly on broad, slightly convex ridgetops and broad flats in the uplands. In some areas they are on a complex of narrow, parallel ridges and swales. Slopes range from 0 to 3 percent.

This map unit makes up about 3 percent of the parish. It is about 56 percent Coteau soils, 32 percent Frost soils, and 12 percent soils of minor extent.

The Coteau soils are on broad ridgetops and side slopes. They are level, very gently sloping, or gently undulating and are somewhat poorly drained. They have a surface layer of brown or dark grayish brown silt loam. The subsoil is dark brown silty clay loam in the upper part, dark yellowish brown, dark brown, and light brownish gray silty clay loam in the next part, and dark brown, mottled silt loam in the lower part.

The Frost soils are on broad flats, in swales, and along drainageways. They are level and poorly drained. They have a surface layer of dark grayish brown, mottled silt loam. The subsurface layer is gray, mottled silt loam. The subsoil is dark gray, mottled silty clay loam and gray silt loam in the upper part and gray, mottled silty clay loam in the lower part.

Of minor extent in this map unit are the somewhat poorly drained Dundee soils on natural levees of distributary channels of the Vermilion River, the somewhat poorly drained Patoutville soils on low, broad ridges, and the well drained Memphis soils on narrow ridgetops.

Most areas of this map unit are used for cultivated crops. Soybeans are the main crop. A small acreage is used for pasture, homesites, or urban development.

The soils in this map unit generally are well suited to cultivated crops and pasture. The Frost soils are moderately well suited or poorly suited to crops and well suited or moderately well suited to pasture. Wetness in level areas and the hazard of erosion in sloping areas are the main management concerns. Medium fertility is a minor limitation. Occasional flooding is an additional hazard in some areas of the Frost soils. Erosion can be controlled by minimizing tillage or farming on the contour. A good drainage system and additions of lime and fertilizer are needed for optimum crop and forage production.

The Coteau soils are moderately well suited to most urban uses and to intensive recreational uses, and the Frost soils are poorly suited. The main limitations are the wetness, a moderate shrink-swell potential, low strength on sites for roads and streets, and moderately slow or slow permeability. Also, flooding is a hazard on the Frost soils.

3. Jeanerette-Patoutville

Level to gently undulating, somewhat poorly drained soils that are loamy throughout

This map unit consists of soils on broad flats, side slopes, and low ridges in the uplands. Slopes range from 0 to 3 percent.

This map unit makes up about 6 percent of the parish. It is about 60 percent Jeanerette soils, 22 percent Patoutville soils, and 18 percent soils of minor extent.

The Jeanerette soils are on broad flats. They are level. They have a surface layer of black silt loam. The subsoil is silty clay loam. The upper part is black, the next part is dark grayish brown and mottled, and the lower part is grayish brown and gray and is mottled. The substratum is gray, mottled silty clay loam.

The Patoutville soils are on low, slightly convex ridges and short side slopes. They are level to gently undulating. They have a surface layer of brown or dark brown silt loam. The subsurface layer is light brownish gray, mottled silt loam. The subsoil is silty clay loam. It is dark grayish brown and mottled in the upper part, grayish brown and mottled in the next part, and gray and yellowish brown in the lower part.

Of minor extent in this map unit are the somewhat poorly drained Frozard soils on low ridges and the poorly drained Frost soils on broad flats, in swales, and along drainageways.

Most areas of this map unit are used for cultivated crops. Sugarcane and soybeans are the main crops. A small acreage is used for pasture or homesites. A few large areas are used for urban development.

The soils in this map unit are well suited to cultivated crops and pasture. Wetness is the main limitation. Medium fertility is a minor limitation in the Patoutville soils, and erosion is a moderate hazard in sloping areas of the Patoutville soils. A good drainage system and additions of lime and fertilizer are needed for optimum crop and forage production. Erosion can be controlled by minimizing tillage or farming on the contour.

The Jeanerette soils are poorly suited to urban development and intensive recreational uses, and the Patoutville soils are moderately well suited. The wetness, a moderate shrink-swell potential, low strength on sites for roads and streets, and moderately slow or slow permeability are the main limitations. Also, flooding is a hazard on the Jeanerette soils.

Soils on the Gulf Coast Prairies

These are mainly level, nearly level, and very gently sloping, somewhat poorly drained and poorly drained soils that have a loamy surface layer and a clayey and loamy or a loamy subsoil.

These soils make up about 30 percent of the parish. Most of the acreage is used for cultivated crops. A small acreage is used for pasture or urban and built-up areas. Seasonal wetness and poor tilth are the main limitations. Erosion is the main hazard affecting agricultural uses. Medium fertility is a minor limitation. The main hazards and limitations affecting urban uses are the wetness, flooding, moderately slow, slow, or very slow permeability, a moderate or high shrink-swell potential, and low strength on sites for roads.

4. Crowley-Mowata

Level to very gently sloping, somewhat poorly drained and poorly drained soils that have a loamy surface layer and a clayey and loamy subsoil

This map unit consists of soils on broad, slightly convex ridges, on broad flats, and along drainageways on the Gulf Coast Prairies. Slopes range from 0 to 3 percent.

This map unit makes up about 13 percent of the parish. It is about 55 percent Crowley soils, 34 percent Mowata soils, and 11 percent soils of minor extent.

The Crowley soils are on broad, slightly convex ridges, on the side slopes of low ridges, and on broad flats between ridges. They are level to very gently sloping and are somewhat poorly drained. They have a surface layer of dark grayish brown silt loam. The subsurface layer is grayish brown, mottled silt loam. The subsoil is gray, mottled silty clay in the upper part and gray, mottled silty clay loam in the lower part.

The Mowata soils are on broad flats and along drainageways. They are level and poorly drained. They have a surface layer of dark grayish brown, mottled silt loam. The subsurface layer is dark gray silt loam. The subsoil is dark gray, mottled silty clay loam and silt loam in the upper part, gray, mottled silty clay in the next part, and mottled gray and yellowish brown silty clay loam in the lower part.

Of minor extent in this map unit are the somewhat poorly drained Kaplan soils on broad, slightly convex ridges and the poorly drained Judice, Midland, and Morey soils on broad flats and in depressions.

Most areas of this map unit are used for cultivated crops. Rice and soybeans are the main crops. A small acreage is used for pasture or urban and built-up areas.

The soils in this map unit are moderately well suited to cultivated crops and well suited to pasture. Wetness is the main limitation, and erosion is the main hazard. Medium fertility is a minor limitation. A good drainage system and additions of lime and fertilizer are needed for optimum crop and forage production.

These soils are poorly suited to urban development and intensive recreational uses. The wetness, a high shrink-swell potential, low strength on sites for roads and streets, and very slow permeability are the main limitations. Also, flooding is a hazard on the Mowata soils and erosion is a hazard in sloping areas of the Crowley soils.

5. Kaplan-Midland-Judice

Level to gently undulating, somewhat poorly drained and poorly drained soils that have a loamy surface layer and a loamy or loamy and clayey subsoil

This map unit consists of soils on low ridges, on broad, slightly convex ridges, on broad flats, and in swales and slightly concave or depressional areas on the Gulf Coast Prairies. Slopes range from 0 to 3 percent.

This map unit makes up about 17 percent of the parish. It is about 38 percent Kaplan soils, 28 percent Midland soils, 21 percent Judice soils, and 13 percent soils of minor extent.

The Kaplan soils are on low ridges or broad, slightly convex ridges. They are level or very gently sloping and are somewhat poorly drained. They have a surface layer of dark grayish brown silt loam. The next layer is dark gray, mottled silt loam. The subsoil is silty clay loam. In sequence downward, it is dark gray and mottled, grayish brown and mottled, gray and mottled, and light brownish gray.

The Midland soils are on broad flats and in slightly concave areas. They are level and poorly drained. They have a surface layer of dark grayish brown silty clay loam. The subsoil is dark gray, mottled silty clay loam in the upper part and gray, mottled silty clay in the lower part.

The Judice soils are in broad depressional areas, on flats, and in swales. They are poorly drained. They have a surface layer of very dark gray or black, mottled silty clay loam. The next layer is very dark gray, mottled silty clay. The subsoil is dark gray, mottled silty clay in the upper part; gray, mottled silty clay in the next part; and gray, mottled silty clay loam in the lower part.

Of minor extent in this map unit are the somewhat poorly drained Crowley soils on slightly convex ridges and on the sides of ridges, the very poorly drained Ged soils in marshy areas, the poorly drained Gueydan soils in drained marshes, and the poorly drained Mowata and Morey soils on broad flats and along drainageways.

Most areas of this map unit are used for cultivated crops. Rice and soybeans are the main crops. A small acreage is used for pasture, woodland, or homesites.

The soils in this map unit are moderately well suited to cultivated crops and well suited to pasture. Wetness and poor tilth are the main limitations. Medium fertility is a minor limitation. Also, erosion is a moderate hazard in sloping areas of the Kaplan soils. A good drainage system and additions of lime and fertilizer are needed for optimum crop and forage production. Erosion can be controlled by minimizing tillage or farming on the contour.

These soils are moderately well suited to woodland. They have a high potential to produce hardwoods, but the wetness can limit the use of equipment and cause moderate or severe seedling mortality. Rutting, compaction, and plant competition are additional concerns in woodland management.

These soils are poorly suited to urban uses and intensive recreational uses. The main limitations are the wetness, flooding, a high shrink-swell potential, low strength on sites for roads and streets, and slow or very slow permeability. Also, erosion is a moderate hazard in sloping areas of the Kaplan soils.

Soils in Swamps and on Flood Plains That are Ponded and Frequently Flooded

These are mainly level, very poorly drained soils in swamps and poorly drained soils on flood plains. The soils are ponded most of the time or are frequently flooded.

These soils make up about 2 percent of the parish. Most of the acreage supports native vegetation and is used as habitat for wetland wildlife or for extensive recreational purposes.

6. Barbary-Fausse

Level, very poorly drained soils that have a mucky or clayey surface layer and a clayey subsoil or clayey underlying material

This map unit consists of soils in swamps and in backswamps on flood plains. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent.

This map unit makes up about 1 percent of the parish. It is about 70 percent Barbary soils, 28 percent Fausse soils, and 2 percent soils of minor extent.

The Barbary soils are in low areas in swamps. They have a surface layer of very dark grayish brown, very fluid muck. The next layer is very dark grayish brown, very fluid mucky clay. The underlying material is very fluid clay. It is dark gray in the upper part and gray in the lower part. Fragments of wood are in all layers except the surface layer.

The Fausse soils are in backswamps on flood plains. They have a surface layer of very dark grayish brown, mottled clay. The subsoil is mottled clay. It is dark gray in the upper part and gray in the lower part. The substratum is gray, mottled clay.

Of minor extent in this map unit are the very poorly drained Allemands and Larose soils in marshes.

Most areas of this map unit support native vegetation and are used for recreational purposes or as habitat for wetland wildlife.

The soils in this map unit are well suited to habitat for wetland wildlife. They provide suitable habitat for many wetland species. Hunting, fishing, and other outdoor activities are popular in areas of this map unit.

These soils are poorly suited to woodland. Special equipment is needed to harvest trees because of ponding and flooding on all of the soils and because of the low load-supporting capacity of the Barbary soils.

These soils are not suited to crops or pasture. Ponding, flooding, and low strength are severe limitations.

These soils generally are not suited to urban uses or to intensive recreational uses. Ponding, flooding, and low strength are severe limitations. Also, the Fausse soils have a very high shrink-swell potential. If the Barbary soils are drained, subsidence and a very high shrink-swell potential are limitations. Another limitation affecting urban uses is the very slow permeability in both soils.

7. Basile

Level, poorly drained soils that are loamy throughout

This map unit consists of soils on narrow flood plains along streams that drain the Gulf Coast Prairies. Flooding typically occurs during late winter and spring but can occur during any season. Slopes are less than 1 percent.

This map unit makes up about 1 percent of the parish. It is about 37 percent Basile soils and 63 percent soils of minor extent.

The Basile soils have a surface layer of dark grayish brown, mottled silt loam. The subsurface layer is gray, mottled silt loam. The subsoil is grayish brown, mottled silty clay loam and gray silt loam in the upper part and gray, mottled silt loam in the lower part.

Of minor extent in this map unit are the somewhat poorly drained Acadia soils on side slopes along drainageways, the poorly drained Mowata and Judice soils in depressions, the very poorly drained Ged soils in marshy areas, and the very poorly drained Barbary soils in swamps.

Most areas of this map unit are used for woodland, recreational purposes, or as habitat for wetland and woodland wildlife. A small acreage is used as pasture.

The Basile soils are well suited to habitat for wetland wildlife. They provide suitable habitat for waterfowl and many other wetland species.

The Basile soils are moderately well suited to woodland. The main concerns in woodland management are severe equipment limitations and severe seedling mortality caused by wetness and flooding. Also, the surface layer is subject to compaction if heavy equipment is used when the soils are moist.

The Basile soils generally are not suited to crops. The wetness and flooding are severe limitations.

The Basile soils are poorly suited to pasture because of the wetness and frequent flooding. Common bermudagrass is a suitable pasture grass.

The Basile soils are not suited to urban uses or intensive recreational uses because of the wetness and flooding. Other limitations are slow permeability, a moderate shrink-swell potential, and low strength on sites for roads and streets.

Soils in Marshes

These are mainly level, very poorly drained, mucky and clayey soils in marshes. The soils are ponded most of the time and are frequently flooded.

These soils make up about 42 percent of the parish. Most of the acreage supports native vegetation and is used for recreational purposes or as habitat for wetland wildlife. The main limitations are ponding, low soil strength, and the hazard of deep flooding during tropical storms.

8. Allemands-Larose

Level, very poorly drained soils that have a peaty or clayey surface layer and mucky and clayey underlying material; in freshwater marshes

This map unit consists of very fluid organic and mineral soils in freshwater marshes. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent.

This map unit makes up about 21 percent of the parish. It is about 69 percent Allemands soils, 21 percent Larose soils, and 10 percent soils of minor extent.

The Allemands soils are organic. They have a moderately thick organic layer that is dark brown, very fluid mucky peat in the upper part; black, very fluid muck in the next part; and dark grayish brown, very fluid muck in the lower part. The next layer is a buried surface layer of black, very fluid mucky clay. The underlying material is gray, very fluid clay.

The Larose soils are mineral. They have a surface layer of dark gray, very fluid mucky clay. The next layer is black, very fluid mucky clay. The underlying material is dark gray, very fluid clay.

Of minor extent in this map unit are Aquents and Udifluvents on spoil banks along waterways and the very poorly drained Bancker, Clovelly, and Ged soils in marshes.

Most areas of this map unit support native vegetation and are used for recreational purposes or as habitat for wetland wildlife.

The soils in this map unit are well suited to habitat for wetland wildlife. They provide habitat for many wetland species and opportunities for hunting, fishing, and other outdoor activities.

These soils are not suited to crops, pasture, woodland, or urban uses. Flooding, ponding, and low soil strength are severe limitations. If these soils are drained, subsidence and a very high shrink-swell potential are limitations affecting most urban uses.

9. Clovelly-Lafitte

Level, very poorly drained soils that have a mucky surface layer and mucky or mucky and clayey underlying material; in brackish marshes

This map unit consists of very fluid, organic soils in brackish marshes. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent.

This map unit makes up about 10 percent of the parish. It is about 60 percent Clovelly soils, 32 percent Lafitte soils, and 8 percent soils of minor extent.

The Clovelly soils have a moderately thick organic layer of very fluid muck. This layer is dark grayish brown in the upper part, very dark grayish brown in the next part, and black in the lower part. The next layer is black, very fluid mucky clay. The underlying material is dark gray, very fluid clay.

The Lafitte soils have a thick organic layer of very dark grayish brown and black, very fluid muck. The underlying material is very dark gray, very fluid mucky clay.

Of minor extent in this map unit are Aquents and Udifluvents on spoil banks along waterways and the very poorly drained Andry, Bancker, Delcomb, and Scatlake soils in marshes.

Most areas of this map unit support native vegetation and are used for recreational purposes or as habitat for wetland wildlife.

The soils in this map unit are well suited to habitat for wetland wildlife. They provide suitable habitat for many wetland species. Hunting, fishing, and other outdoor activities are popular in areas of this map unit. These soils are part of the estuary that helps to support marine life in the Gulf of Mexico.

These soils are not suited to crops, pasture, woodland, or urban uses. Flooding, ponding, salinity, and low strength are severe limitations. Water-control structures are difficult to install and maintain because of the very fluid nature of the organic and mineral soils. If these soils are drained and protected from flooding for urban uses, they can subside several feet below sea level. If the soils subside, the very high shrink-swell potential of the underlying clay is a limitation.

10. Bancker-Creole

Level, very poorly drained soils that have a mucky surface layer and clayey underlying material; in brackish marshes

This map unit consists of very fluid and slightly fluid, mineral soils in brackish marshes. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent.

This map unit makes up about 8 percent of the parish. It is about 75 percent Bancker soils, 20 percent Creole soils, and 5 percent soils of minor extent.

The Bancker soils are very fluid, mineral soils. They have a surface layer of very fluid muck. This layer is very dark grayish brown in the upper part and black in the lower part. The underlying layer is very fluid clay. It is dark gray in the upper part, dark greenish gray in the next part, and greenish gray in the lower part.

The Creole soils are very fluid and slightly fluid, mineral soils. They have a surface layer of very dark grayish brown, very fluid muck. The next layer is black, slightly fluid mucky clay. Below this is greenish gray, slightly fluid clay. The underlying material is greenish gray, very fluid clay.

Of minor extent in this map unit are Aquents and Udifluvents on spoil banks along waterways and the very poorly drained Scatlake and Clovelly soils in marshes. Scatlake and Clovelly soils make up the largest percent of the minor soils.

Most areas of this map unit support native vegetation and are used for recreational purposes or as habitat for wetland wildlife. A small acreage of the Creole soils is used as rangeland.

The soils in this map unit are well suited to habitat for wetland wildlife. They provide suitable habitat for many wetland species. Hunting, fishing, and other outdoor activities are popular in areas of this map unit. These soils are part of the estuary that helps to support marine life in the Gulf of Mexico.

These soils are not suited to cropland, pasture, woodland, or urban uses. Flooding, ponding, salinity, and low strength are severe limitations. Water-control structures are difficult to maintain and install because of the instability and very fluid nature of the soils. If these soils are drained and protected from flooding, they can subside. If the soils subside, the very high shrink-swell potential of the underlying clay is a limitation.

The Creole soils are moderately well suited to rangeland. Flooding, ponding, a moderately low load-supporting capacity, and insects are the main hazards and limitations.

11. Scatlake

Level, very poorly drained soils that have a clayey surface layer and clayey underlying material; in saline marshes

This map unit consists of very fluid, mineral soils in saline marshes. These soils are ponded most of the time and are frequently flooded. Slopes are less than 1 percent.

This map unit makes up about 3 percent of the parish. It is about 90 percent Scatlake soils and 10 percent soils of minor extent.

The Scatlake soils have a surface layer of very dark gray, very fluid mucky clay. The underlying material is dark gray and gray, very fluid clay.

Of minor extent in this map unit are beaches along the Gulf of Mexico and the very poorly drained Bancker and Clovelly soils in brackish marshes. Bancker soils make up the largest percent of the minor soils.

Most areas of this map unit support native vegetation and are used for recreational purposes or as habitat for wetland wildlife. These soils provide suitable habitat for many wetland species. Hunting, trapping, fishing, and other outdoor activities are popular in areas of this map unit. These soils are part of an estuary that helps to support marine life in the Gulf of Mexico.

The Scatlake soils are not suited to cropland, pasture, woodland, or urban uses. Flooding, ponding, salinity, and low strength are severe limitations. Water-control structures are difficult to install and maintain because of the instability and the very fluid nature of the soils. If these soils are drained and protected from flooding for urban uses, they can subside. If the soils subside, the very high shrink-swell potential of the underlying clay is a limitation.

Soils in Former Marshes That are Drained and Protected From Flooding

These are mainly level, poorly drained, mucky soils in former marshes that have been drained and are protected from most floods. Flooding is rare but can occur during hurricanes or when protection levees and drainage pumps fail.

These soils make up about 5 percent of the parish. Most of the acreage is used for crops. A small acreage is used as rangeland. Wetness and soil acidity are the main limitations affecting crops.

12. Gueydan

Level, poorly drained soils that have a mucky surface layer and a clayey subsoil

This map unit consists of soils in former freshwater marshes that are protected from most floods by levees and are drained by pumps. Flooding is rare but can occur during unusually wet periods or when pumps and levees fail. These soils have subsided because of drainage. Slopes are less than 1 percent.

This map unit makes up about 5 percent of the parish. It is about 95 percent Gueydan soils and 5 percent soils of minor extent.

The Gueydan soils have a thin surface layer of black muck. The subsoil is grayish brown silty clay in the upper part, dark gray clay in the next part, and gray clay in the lower part. The next layer is dark gray, mottled silty clay. Below this is gray, mottled clay.

Of minor extent in this map unit are the poorly drained Midland soils in slightly raised areas and the very poorly drained Ged soils in marshes.

Most areas of this map unit are used for cultivated crops. Rice is the main crop. A small acreage is used as rangeland.

The Gueydan soils are poorly suited to crops, woodland, and pasture. Wetness and acidity in the surface layer are the main limitations. A good drainage system and additions of lime and fertilizer are needed for optimum crop and forage production.

The Gueydan soils are poorly suited to urban uses and intensive recreational uses. Flooding is the main hazard. The wetness, very slow permeability, low strength on sites for roads and streets, and a very high shrink-swell potential are the main limitations.

The Gueydan soils are moderately well suited to rangeland. The wetness is the main limitation.

Soils on Low Ridges and in Swales

These are mainly level and gently undulating, poorly drained and somewhat poorly drained soils on low ridges and in swales between low ridges on the Gulf Coast Marsh. The ridges are mainly long and narrow and are parallel to the coast of the Gulf of Mexico. The soils have a clayey or loamy surface layer and a clayey or sandy subsoil.

These soils make up about 1 percent of the parish. Most of the acreage supports native vegetation and is used as rangeland. A small acreage is used for pasture, orchards, homesites, or industrial sites. The main limitation is wetness, and the main hazard is flooding during tropical storms.

The main hazards and limitations affecting urban uses are flooding, the wetness, a high shrink-swell potential, very slow permeability, and salinity.

13. Mermentau-Hackberry

Level and gently undulating, poorly drained and somewhat poorly drained soils that have a clayey or loamy surface layer, a clayey, sandy, or loamy subsoil, and a loamy or sandy substratum

This map unit consists of soils on low ridges, on toe slopes of ridges, and in swales between ridges. Areas of these soils are generally parallel to the coastline of the Gulf of Mexico. Slopes range from 0 to 3 percent.

This map unit makes up about 1 percent of the parish. It is about 72 percent Mermentau soils, 15 percent Hackberry soils, and 13 percent soils of minor extent.

The level, poorly drained Mermentau soils are on low ridges and in swales between ridges. They have a surface layer of black or very dark gray clay. The subsoil is gray, mottled clay. The substratum is grayish brown, mottled fine sandy loam in the upper part; gray, mottled sandy loam in the next part; and gray, mottled clay loam in the lower part.

The level and gently undulating, somewhat poorly drained Hackberry soils are on low ridges and on toe slopes of low ridges. They have a surface layer of very dark gray sandy clay loam or fine sandy loam. The next layer is dark grayish brown fine sandy loam. The subsoil is brown, mottled loamy fine sand in the upper part; grayish brown, mottled fine sandy loam in the next part; and brown, mottled fine sand in the lower part. The substratum is brown and grayish brown fine sand in the upper part and dark greenish gray and olive sand in the lower part.

Of minor extent in this map unit are the very poorly drained Bancker, Creole, Larose, and Scatlake soils in marshes and the somewhat excessively drained Cheniere soils on ridges. Creole and Cheniere soils make up the largest percent of the minor soils.

Most areas of this map unit support native vegetation and are used as rangeland or habitat for wetland wildlife. A small acreage is used for improved pasture grasses or orchards, or it is used for homesites, gardens, or industrial sites.

The soils in this map unit are moderately well suited to rangeland. Under good management, native grasses can provide suitable forage to grazing livestock. Wetness and flooding are the main limitations. Proper grazing management, weed and brush control, and protection from fires are needed for the optimum forage production of native grasses.

These soils generally are not suited to cultivated crops or to improved pasture. The Hackberry soils are moderately well suited to pasture and to crops, such as corn, soybeans, and vegetables. The wetness and salinity are the main limitations. Flooding is the main hazard.

These soils are poorly suited to urban uses and to intensive recreational uses. The wetness, very slow permeability, a high shrink-swell potential, and salinity are the main limitations. Also, rare or frequent flooding is a hazard. Seepage and the susceptibility of cutbanks caving are additional limitations in areas of the Hackberry soils.

Detailed Soil Map Units

The map units on the detailed soil maps at the back of this survey represent the soils in the survey area. The map unit descriptions in this section, along with the soil maps, can be used to determine the suitability and potential of a soil for specific uses. They also can be used to plan the management needed for those uses. More information on each map unit, or soil, is given under the heading "Use and Management of the Soils."

Each map unit on the detailed soil maps represents an area on the landscape and consists of one or more soils for which the unit is named.

A symbol identifying the soil precedes the map unit name in the soil descriptions. Each description includes general facts about the soil and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer or of the underlying material, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer or of the underlying material. They also can differ in slope, stoniness, salinity, wetness, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Frost silt loam, occasionally flooded, is a phase of the Frost series.

Some map units are made up of two or more major soils. These map units are called soil complexes. A *soil complex* consists of two or more soils in such an intricate pattern or in such small areas that they cannot be shown separately on the soil maps. The pattern and proportion of the soils are somewhat similar in all areas. Crowley-Patoutville silt loams is an example.

Most map units include small scattered areas of soils other than those for which the map unit is named. Some of these included soils have properties that differ substantially from those of the major soil or soils. Such differences could significantly affect use and management of the soils in the map unit. The included soils are identified in each map unit description.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Beach, coastal, is an example. Miscellaneous areas are shown on the soil maps.

The boundaries of map units in Vermilion Parish were matched, wherever possible, with those of the previously completed surveys of Acadia, Cameron, Iberia, and Lafayette Parishes. In a few places, however, the names of the map units differ. This difference resulted mainly from changes in map unit design and changes in soil patterns near survey area boundaries.

All of the soils in Vermilion Parish were mapped at the same level of detail, except for those soils in marshes, in swamps, and on flood plains that are frequently flooded. In areas where flooding or ponding limit the use and management of the soils, separating soils in mapping is of little importance to the land user.

Table 5 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The "Glossary" defines many of the terms used in describing the soils.

Aa—Acadia silt loam, 1 to 3 percent slopes. This very gently sloping, somewhat poorly drained soil is on side slopes along drainageways on the Gulf Coast Prairies.

Typically, the surface layer is dark grayish brown, mottled silt loam about 4 inches thick. The subsurface layer is grayish brown, mottled silt loam about 4 inches thick. The subsoil is about 39 inches thick. It is light yellowish brown, mottled silty clay loam in the upper part; light brownish gray, mottled silty clay in the next part; and gray, mottled silty clay loam in the lower part. The substratum to a depth of about 60 inches is grayish brown, mottled silty clay loam.

Included with this soil in mapping are a few small areas of Basile, Crowley, and Kaplan soils. Basile soils are in drainageways. They have less clay in the subsoil than the Acadia soil. Crowley and Kaplan soils are on ridges in landscape positions slightly higher than those of the Acadia soil. Crowley soils have an abrupt textural change between the subsurface layer and the subsoil. Kaplan soils are more alkaline throughout than the Acadia soil. Also included are a few small areas of Acadia soils that have slopes of 3 to 5 percent. Included soils make up about 10 percent of the map unit.

The Acadia soil has low fertility. High levels of exchangeable aluminum in the root zone are potentially toxic to most crops. Water runs slowly off the surface. Water and air move through this soil at a very slow rate. A seasonal high water table is perched above the clayey subsoil. It ranges from about 0.5 foot to 1.5 feet below the surface during the period December through April. The surface layer remains wet for long periods in winter and spring. The shrink-swell potential is high.

Most areas of this map unit are used as pasture or woodland. A few areas are used for homesites.

This soil is well suited to pasture. The low fertility, the wetness, and the hazard of erosion are minor concerns in management. The main suitable pasture plants are bahiagrass, common bermudagrass, ryegrass, winterpea, and wheat. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Preparing seedbeds on the contour or across the slope helps to control erosion. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. The wetness can limit the use of equipment, and competition from understory plants is severe. Using heavy equipment when the soil is moist can compact the soil and reduce its productivity. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. The main trees suitable for planting are loblolly pine and slash pine. Harvesting only during the drier periods helps to prevent rutting and compaction.

This soil is moderately well suited to cultivated crops. It is limited mainly by the low fertility and the hazard of erosion. Other limitations are the wetness and potentially toxic levels of exchangeable aluminum. Soybeans and rice are the main crops. The hazard of erosion can be reduced if fall grain is seeded early, stubble-mulch tillage is used, or tillage and seeding are on the contour or across the slope. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper irrigation systems should be used for the production of rice. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Fertilizer and lime can be added to overcome the low fertility and the high level of aluminum in the root zone.

This soil is poorly suited to urban uses. It has severe limitations affecting building sites, local roads and streets, and most sanitary facilities. The main limitations are the wetness, the very slow permeability, low strength on sites for roads, and the high shrink-swell potential. A drainage system is needed if roads and building foundations are constructed. Septic tank absorption fields do not function properly during rainy periods because of the wetness and very slow permeability. Lagoons or self-contained disposal units are suitable systems of sewage disposal. Preserving the existing plant cover during construction helps to control erosion. Mulching, applying fertilizer, and irrigating help to establish lawn grasses and other small-seeded plants. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to recreational development. It is limited mainly by the wetness and the very slow permeability. Erosion can be a hazard in heavily used areas, such as playgrounds. A good drainage system is needed in most recreational areas. Providing a good plant cover helps to control erosion. The plant cover can be maintained by controlling traffic and applying fertilizer.

This soil is well suited to habitat for dove, quail, deer, squirrel, rabbits, and numerous other small furbearers. Wildlife habitat can be improved by selectively harvesting timber to leave large den and mast-producing trees, such as oak and hickory.

The capability subclass is IIIe. The woodland ordination symbol is 9W.

AE—Allemands mucky peat. This level, very poorly drained organic soil is in freshwater marshes. It is ponded most of the time and frequently flooded. Because of poor accessibility, the number of observations made in areas of this soil was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the organic material is about 48 inches thick. It is dark brown, very fluid mucky peat in the upper part; black, very fluid muck in the next part; and dark grayish brown, very fluid muck in the lower part. The next layer is a buried surface layer about 12 inches thick. It is black, very fluid mucky clay. The underlying material to a depth of about 80 inches is gray, very fluid clay.

Included with this soil in mapping are a few small to large areas of Ged soils, Larose soils, and soils that are similar to the Allemands soil but have more than 51 inches of organic material over mineral material. Also included are a few small ponds and perennial streams. Ged and Larose soils are in landscape positions similar to those of the Allemands soil. They are mineral. Included areas make up about 15 percent of the map unit.

The Allemands soil is ponded with several inches of fresh water most of the time. During tidal storms, floodwater is as much as 2 feet deep. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. The soil has a low load-supporting capacity. Permeability is moderately rapid or rapid in the organic material and very slow in the clayey underlying material. The total subsidence potential is high. The shrink-swell potential generally is low because the soil is saturated and very fluid throughout. If the soil is drained, the shrink-swell potential of the underlying material is very high.

The natural vegetation consists mainly of bulltongue and maidencane. Other common plants are cattail, water primrose, alligatorweed, and pickerelweed.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes.

This soil is well suited to habitat for wetland wildlife. It provides roosting and feeding areas for ducks and many other types of waterfowl. It also provides habitat for American alligators and furbearers, such as nutria, mink, muskrats, and raccoons. Water-control structures for intensive wildlife management are difficult to construct and maintain because of the instability of the organic material. The trapping of alligators and furbearers is a major enterprise in areas of this soil. The open water areas, such as ponds, canals, and streams, produce large numbers of freshwater fish. Commercial fishing is an important enterprise. Sport fishing and hunting waterfowl are popular sports.

This soil is not suited to cultivated crops, pasture, or woodland. Wetness, the flooding, the poor accessibility, and low strength are severe limitations. The soil is generally too soft and boggy to support the weight of grazing livestock. Trees suitable for timber production generally do not grow on this soil. Drainage and protection from flooding are possible, but extensive water-control structures, such as levees and pumps, are needed. Extreme acidity, subsidence, and low strength are continuing limitations after drainage.

This soil is not suited to urban uses. The wetness, the flooding, and low strength are severe limitations. Drainage is feasible, but an extensive system of levees and water pumps is needed. If this soil is drained, subsidence and the very high shrink-swell potential of the clayey underlying material are continuing limitations. The soil is poorly suited to use as construction material for levees. It shrinks and cracks upon drying, causing levees to fail.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

AG—Andry muck. This level, very poorly drained, mineral soil is in brackish marshes. It is ponded most of the time and flooded frequently. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface is covered with a mat of dark grayish brown muck about 8 inches thick. The next layer is about 12 inches thick. It is black, very fluid mucky silt loam in the upper part and black, mottled, very fluid silt loam in the lower part. The subsoil extends to a depth of about 68 inches. It is very dark gray, slightly fluid silt loam in the upper part; dark gray, mottled, friable silt loam in the next part; and gray, mottled, firm silty clay loam in the lower part.

Included with this soil in mapping are a few small to large areas of Delcomb and Lafitte soils. These included soils are slightly lower on the landscape than the Andry soil. They are organic. Also included are a few small areas of Andry soils that are protected from flooding by levees and drained with pumps. Included soils make up about 20 percent of the map unit.

The Andry soil is almost continuously ponded with several inches of moderately saline water. During storms, floodwater from tides is as much as 3 feet deep. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. Permeability is moderately slow. The soil is generally firm enough to support livestock grazing. The shrink-swell potential is moderate. The total subsidence potential is low.

The natural vegetation consists mainly of marshhay cordgrass. Other common plants are needlegrass rush, saltmarsh bulrush, Olney bulrush, and seashore saltgrass. Some areas support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or as rangeland. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting and feeding areas for ducks, geese, and many other types of waterfowl. The soil also provides habitat for American alligators and furbearers, such as nutria, muskrat, mink, and raccoon. It is part of an estuarine complex that supports marine life in the Gulf of Mexico. The main concerns in managing this soil for wildlife habitat are controlling water levels and preventing intrusions of salt water.

Hunting waterfowl is a popular sport in areas of this soil.

Unless drained and protected from flooding, this soil is not suited to cropland, pasture, or woodland. If water is controlled by a system of dikes, ditches, and pumps, the soil can be used for rice or pasture grasses.

This soil is not suited to urban or intensive recreational uses. Wetness and low strength on sites for roads are the main limitations. Flooding is a hazard.

The capability subclass is VIIw. No woodland ordination symbol is assigned.

Ah—Andry muck, drained. This level, poorly drained, mineral soil is in former brackish marshes that are drained and protected from most floods. Slopes are less than 1 percent.

Typically, the surface layer is 10 inches thick. It is black muck in the upper part and black silt loam in the lower part. The subsoil is about 60 inches thick. It is dark gray silty clay loam in the upper part, gray silty clay loam in the next part, and greenish gray silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Jeanerette and Judice soils. Jeanerette soils are higher on the landscape than the Andry soil. They do not have an organic surface layer. Judice soils are in landscape positions similar to the Andry soil. They have more clay in the subsoil than the Andry soil. Also included are a few small areas of soils that are similar to the Andry soil but that have a thicker organic surface layer. Included soils make up about 20 percent of the map unit.

The Andry soil is protected from most floods by levees and drained with pumps. Under normal conditions, the water table is at a depth of 1 to 3 feet. After high intensity rains of long duration, it is near the surface for short to long periods. The soil is subject to rare flooding during unusually wet periods. Water and air move at a moderately slow rate through the soil. The available water capacity is moderate or high. This soil has medium fertility. The content of organic matter is very high. The total subsidence potential is low. The upper part of the soil typically becomes more acid as the organic matter decomposes. In places where the soil has subsided, the water table is near the surface most of the time.

Most areas of this map unit are used as pasture. A few areas are used for cultivated crops or as rangeland.

This soil is poorly suited to cultivated crops. Wetness and acidity are the main limitations. The medium fertility is a minor limitation. Rice is the main crop. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Adequate water control is needed. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of equipment. Flood irrigation is needed for the production of rice. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system.

This soil is poorly suited to pasture. Common bermudagrass, Dallisgrass, tall fescue, improved bermudagrass, and ryegrass are suitable pasture plants. Wetness is the main limitation. The medium fertility is a minor limitation. Adequate water control is needed. Fertilizer and lime are needed for the optimum growth of grasses and legumes. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is poorly suited to woodland. Native trees did not grow on this soil before it was drained. Wetness is the main limitation. Only water-tolerant trees should be planted. Seedling mortality is severe because of the wetness. If the soil is used for timber production, the main concerns are severe equipment limitations and the seedling mortality. Eastern cottonwood is suitable for planting. The potential for timber production is high.

This soil is poorly suited to urban and intensive recreational uses. The flooding, the wetness, and low strength on sites for roads are the main limitations. Flooding is rare, but it can occur during intense rainfall or when pumps or protection levees fail. Adequate water control is needed. Constructing buildings on piers, adding loamy material to the soil, and controlling the level of the water table help to support and stabilize buildings. The moderately slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained disposal units can be used to properly dispose of sewage.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers.

The capability subclass is Vw. No woodland ordination symbol is assigned.

AN—Aquents, frequently flooded. These loamy and clayey soils are in areas that were hydraulically excavated during the construction and maintenance of navigable waterways. Levees were constructed around a large area, and then the soil material and water were pumped into the area. The result is a level area slightly higher than the surrounding marsh. Areas are irregularly shaped and range from 10 to about 250 acres in size. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soils. Slopes are less than 1 percent.

The soil material is gray and ranges from sandy loam to clay. It has been altered and mixed by excavation and subsequent redeposition. It is firm to very fluid.

Included with these soils in mapping are a few large areas of Allemands, Bancker, Clovelly, Delcomb, Lafitte, and Larose soils and Udifluvents. Allemands, Bancker, Clovelly, Delcomb, Lafitte, and Larose soils are slightly lower on the landscape than the Aquents. Allemands, Clovelly, Delcomb, and Lafitte soils are organic. Bancker and Larose soils are mineral and are very fluid throughout. Udifluvents are in the higher landscape positions. They are brownish. Included soils make up about 10 percent of the map unit.

The Aquents are poorly drained and are frequently flooded. Salinity is moderate. Water and air move through these soils at a very slow rate. Water runs off the surface at a very slow rate.

The natural vegetation consists mainly of marshhay cordgrass and seashore saltgrass.

Most of the acreage is used as habitat for wetland wildlife. The use of these soils is limited because of continuing dredging and additions of soil material.

These soils are moderately well suited to habitat for wetland wildlife. They provide roosting and feeding areas for ducks, geese, and many other types of waterfowl. They also provide habitat for American alligators and furbearers, such as nutria, mink, muskrat, and raccoon.

These soils are not suited to cultivated crops, pasture, or woodland. Wetness, the flooding, the salinity, low strength, and the poor accessibility are severe limitations. Except during dry periods, the soils are too soft and boggy to support the weight of grazing livestock.

These soils are not suited to urban or intensive recreational uses. The flooding, the wetness, a very high shrink-swell potential, the very slow permeability, the salinity, and low strength on sites for roads are the main limitations.

The capability subclass is VIIw. No woodland ordination symbol is assigned.

BA—Bancker muck. This level, very poorly drained, very fluid, mineral soil is in brackish marshes. It is ponded most of the time and flooded frequently. Many areas are intermittently submerged and occur as small to large lakes. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very fluid muck about 10 inches thick. It is very dark grayish brown in the upper part and black in the lower part. The underlying layer to a depth of about 72 inches is very fluid clay. It is dark gray in the upper part, dark greenish gray in the next part, and greenish gray in the lower part.

Included with this soil in mapping are a few small areas of Clovelly, Creole, and Scatlake soils. Also included are numerous small ponds and tidal channels. Clovelly and Scatlake soils are in landscape positions similar to those of the Bancker soil. Clovelly soils are organic. Creole soils are slightly higher on the landscape than the Bancker soil. They have a slightly fluid surface layer and subsurface layer. Scatlake soils are more saline than the Bancker soil. Included soils make up about 20 percent of the map unit.

The Bancker soil is ponded with several inches of water most of the time. During storms, tidal floodwater from the Gulf of Mexico is as deep as 10 feet. This soil is very slightly saline or slightly saline. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. The soil has a low load-supporting capacity. The shrink-swell potential is low because the soil is very fluid. Permeability is very slow. The total subsidence potential is low.

The natural vegetation consists mainly of marshhay cordgrass (fig. 2). Other common plants are needlegrass rush, seashore paspalum, common reed, saltmarsh bulrush, Olney bulrush, smooth cordgrass, and seashore saltgrass. Large areas are intermittently submerged and support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting areas and a fair supply of food for ducks, geese, and many other types of waterfowl. It also provides good habitat for muskrats. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is not suited to cultivated crops, pasture, or woodland. Wetness, the flooding, the salinity, low strength, and the poor accessibility are severe limitations. The soil cannot support the weight of

Figure 2.—Marshhay cordgrass in an area of Bancker muck in a brackish marsh.

grazing cattle or machinery. It can be drained and protected from flooding, but extreme acidity and subsidence are continuing limitations. Trees suitable for timber production generally do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The flooding, the wetness, the salinity, the very slow permeability, and low strength are severe limitations. Also, hurricanes are common in areas of this soil. If this soil is drained and protected from flooding, it shrinks and subsides to below sea level.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

BB—Barbary muck. This level, very poorly drained, very fluid soil is in swamps. It is ponded most of the time and frequently flooded. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown, very fluid muck about 4 inches thick. The next layer is very dark grayish brown, very fluid mucky clay about 6 inches thick. The underlying material extends to a depth of about 60 inches. It is dark gray, very fluid clay in the upper part and gray, very fluid clay in the lower part. The lower part contains fragments of wood.

Included with this soil in mapping are a few small to large areas of Allemands, Basile, Fausse, and Larose soils. Allemands soils are in marshes and are organic. Basile soils are in the higher landscape positions along Bayou Queue de Tortue. They are firm throughout. Fausse soils are in landscape positions similar to those of Barbary soil. They are firm in the upper part. Larose soils are in marshes. They do not have fragments of wood in the lower part. Also included are a few large areas of soils along the Mermentau River that are similar to the Barbary soil but that have more acid underlying layers. Included soils make up about 20 percent of the map unit.

The Barbary soils are almost continuously ponded. The flooding by run-in water or tidal action is frequent. Floodwater is 1 to 7 feet deep. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. This soil is saturated throughout. Permeability is very slow. The total subsidence potential is low.

The natural vegetation consists mainly of baldcypress and water tupelo (fig. 3). Other common plants are red maple, alligatorweed, water hyacinth, lizard tail, and buttonbush.

Most areas are used as woodland and wildlife habitat. This soil is well suited to habitat for wetland wildlife. It provides roosting areas for migratory ducks and food and nesting sites for wood ducks, squirrels, alligators, and nongame birds. The soil also provides suitable habitat for crawfish and furbearers, such as raccoons, nutria, and otter.

This soil is poorly suited to woodland. It has severe equipment limitations. Seedling mortality is severe because of wetness and flooding. Timber can be harvested only if special equipment is used. The soil does not support most types of harvesting equipment. Natural regeneration of baldcypress and water tupelo is very slow, and it occurs mainly on rotting logs, stumps, and root mats.

This soil is not suited to cultivated crops, pasture, or rangeland. The ponding, the flooding, the poor accessibility, and low strength are severe limitations. Except during dry periods, the soil is too soft and boggy to support the weight of grazing livestock.

This soil is not suited to urban uses. The wetness, the flooding, the very slow permeability, and low strength are severe limitations. If the soil is drained, it can shrink and subside.

Figure 3.—Baldcypress and water typelo in an area of Barbary muck.

The capability subclass is VIIw. The woodland ordination symbol is 4W.

BE—Basile silt loam, frequently flooded. This level, poorly drained soil is on narrow flood plains along streams that drain the Gulf Coast Prairies. It is frequently flooded for brief to long periods during any season of the year. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown, mottled silt loam about 6 inches thick. The subsurface layer is gray, mottled silt loam about 18 inches thick. The subsoil extends to a depth of about 60 inches. It is grayish brown, mottled silty clay loam and gray silt loam in the upper part and gray, mottled silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Acadia and Barbary soils. Acadia soils are on side slopes along drainageways. They have more clay in the subsoil than the Basile soil. Barbary soils are lower on the landscape than the Basile soil. They have very fluid underlying layers. Included soils make up about 10 percent of the map unit.

The Basile soil has low fertility. Water runs off the surface at a very slow rate. Water and air move through this soil at a slow rate. A seasonal high water table is within a depth of about 1.5 feet during the period December through May. The shrink-swell potential is moderate.

Most areas are used as pasture or woodland. Wooded areas are grazed, used for recreation, or used as habitat for wetland and woodland wildlife.

This soil is poorly suited to pasture. The main limitation is wetness. Flooding is a hazard. The low fertility is a minor limitation. The wetness limits the choice of plants and the period of grazing. It also can limit the use of equipment. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. The main suitable pasture plant is common bermudagrass. Fertilizer is needed for the optimum growth of grasses.

This soil is moderately well suited to woodland. Seedling mortality is severe because of the wetness and flooding. The main concerns in producing and harvesting timber are severe equipment limitations, compaction, and seedling mortality. Only trees that can tolerate seasonal wetness should be planted. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from December through May. Harvesting only during dry periods helps to prevent compaction. The trees suitable for planting include eastern cottonwood, overcup oak, American sycamore, and sweetgum.

This soil is not suited to cropland, urban uses, or intensive recreational areas. The flooding generally is a severe limitation. It can be controlled only if dams and levees that impound water or divert runoff are constructed. Additional limitations to urban uses are the moderate shrink-swell potential, the slow permeability, and low strength on sites for roads and streets. Roads can be constructed above the expected level of flooding. Properly designing roads helps to offset the limited ability of the soil to support a load. Properly designing building foundations helps to prevent the damage caused by shrinking and swelling.

This soil is moderately well suited to habitat for ducks, deer, squirrels, rabbits, and numerous other small furbearers. Wildlife habitat can be improved by selectively harvesting timber so that large den and mast-producing trees remain.

The capability subclass is Vw. The woodland ordination symbol is 4W.

Bh—Beach, coastal. These soils occur as an unvegetated strip of sand and shell fragments along the shoreline of the Gulf of Mexico. They are continually washed by waves. They are typically covered with water at high tide and exposed during low tide. The higher areas are generally covered with debris that has washed in during high tides or stormy periods. The soils are a mixture of sand, clay, and shell fragments. Areas are long and narrow and range from about 40 to 250 acres in size. Slopes are less than 1 percent.

Included with these soils in mapping are a few small areas of Cheniere and Scatlake soils. Cheniere soils are in the higher landscape positions. They have a distinct surface layer. Scatlake soils are in the landward marshes. They are clayey throughout. Included soils make up about 5 percent of the map unit.

Most areas of this map unit are used for extensive recreational purposes. Beaches are not suited to agricultural, forestry, or urban uses. The tidal flooding is a severe hazard.

No interpretative groups are assigned.

Ch—Cheniere sandy clay loam, 1 to 3 percent slopes. This very gently sloping, somewhat excessively drained soil is on low ridges that are generally parallel to the coast of the Gulf of Mexico. Areas are long and narrow and range from 5 to 150 acres in size.

Typically, the surface layer is very dark gray sandy clay loam about 5 inches thick. The underlying material extends to a depth of about 63 inches. It is stratified yellowish brown and dark brown sand, loamy sand, and shell fragments in the upper part and stratified dark grayish brown, brown, and yellowish brown sand, loamy fine sand, and shell fragments in the lower part.

Included with this soil in mapping are a few small areas of Hackberry soils. These included soils are lower on the landscape than the Cheniere soil. They have a well developed subsoil. Also included are a few small areas of soils that are similar to the Cheniere soil but have less shell fragments in the subsoil. Included soils make up about 15 percent of the map unit.

The Cheniere soil has medium fertility. It is subject to rare flooding by tidal surges during tropical storms. Water and air move through this soil at a rapid rate. Water runs off the surface at a slow rate. This soil is droughty, and plants generally suffer from a lack of water during dry periods in the summer and fall of most years. The shrink-swell potential is low.

Most areas are used for homesites, gardens, or orchards. A few areas are used as pasture.

This soil is moderately well suited to pasture. Droughtiness is the main limitation. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, and bahiagrass. Irrigation and fertilizer are needed for the optimum growth of grasses and legumes. Rotation grazing helps to maintain the quality of forage. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth.

This soil is poorly suited to most cultivated crops. It is limited mainly by the droughtiness. The medium fertility is a minor limitation. Vegetables and other garden crops can be grown if supplemental water is provided by irrigation. Tilth and fertility can be improved by returning crop residue to the soil. Crops respond well to additions of fertilizer.

This soil is moderately well suited to woodland. Most areas, however, are already developed for urban uses and are not expected to be used for commercial timber production. If the soil is used to produce timber, the droughtiness can limit production. Trees such as live oak and ornamental trees and shrubs can be grown where supplemental water is applied.

This soil is poorly suited to urban development. The main limitation is the flooding. Also, seepage is a problem on sites for sanitary facilities. Selection of adapted vegetation is critical for the establishment of lawns, shrubs, trees, and vegetable gardens because of the droughtiness. It is difficult to establish plants in areas where the surface layer has been removed, exposing the layers of sandy material and shell fragments. Mulching, applying fertilizer, and irrigating help to establish plants.

This soil is moderately well suited to recreational development. The main limitations are the slope and the droughtiness. Flooding is a hazard in camp areas. Erosion can be a hazard in intensively used areas, such as playgrounds. Maintaining a good plant cover can help to control runoff and erosion. The plant cover can be maintained by applying fertilizer, irrigating, and controlling traffic. Flooding can be controlled by constructing levees and diversions.

The capability subclass is IIIs. No woodland ordination symbol is assigned.

CL—Clovelly muck. This level, very poorly drained, very fluid, organic soil is in brackish marshes. It is ponded and flooded most of the time. Most areas are intermittently submerged and occur as small to large lakes. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the organic material is very fluid muck about 40 inches thick. It is dark grayish brown in the upper part, very dark grayish brown in the next part, and black in the lower part. The next layer is black, very fluid mucky clay about 12 inches thick. The underlying material to a depth of about 80 inches is dark gray, very fluid clay.

Included with this soil in mapping are a few large areas of Allemands, Bancker, Lafitte, and Scatlake soils. The included soils are in landscape positions similar to those of the Clovelly soil. Allemands soils are less saline than the Clovelly soil. Bancker and Scatlake soils are mineral. Included soils make up about 20 percent of the map unit.

The Clovelly soil is ponded with several inches of moderately saline water most of the time. During storms, floodwater is as much as 3 feet deep. This soil is saturated throughout. It is slightly saline. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. The soil has a low load-supporting capacity. The clayey underlying material has a low shrink-swell potential because it is saturated and very fluid. Permeability is moderately rapid or rapid in the organic layers and very slow in the clayey layers. The total subsidence potential is high.

The natural vegetation consists mainly of marshhay cordgrass. Other common plants are needlegrass rush, saltmarsh bulrush, Olney bulrush, and seashore saltgrass. Large areas are intermittently submerged and support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting areas and a fair supply of food for ducks, geese, and many other types of waterfowl. It also provides good habitat for muskrats. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the flooding, the salinity, low strength, and the poor accessibility are severe limitations. The soil cannot support the weight of grazing livestock. It can be protected from flooding and drained by pumps, but extreme acidity, salt water from storms, subsidence, and low strength are continuing limitations. Trees suitable for commercial timber production generally do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The flooding, the ponding, and low strength are severe limitations. If the soil is drained and protected from flooding, it subsides several feet below sea level. After the soil is drained, the very high shrink-swell potential of the clayey underlying material is a limitation.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

Cm—Coteau silt loam, 0 to 1 percent slopes. This level, somewhat poorly drained soil is on broad, slightly convex ridgetops in the uplands.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil extends to a depth of about 60 inches. In sequence downward, it is yellowish brown, mottled silty clay loam; dark yellowish brown, mottled silty clay loam and light brownish gray and pale brown silt loam; mottled dark brown and light brownish gray silty clay loam; and dark brown silt loam.

Included with this soil in mapping are a few small areas of Frost and Patoutville soils. Frost soils are lower on the landscape than the Coteau soil. They have a subsurface layer that extends into the subsoil. Patoutville soils are slightly lower on the landscape than the Coteau soil. They have gray colors in the upper part of the subsoil. Included soils make up about 10 percent of the map unit.

The Coteau soil has medium fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a moderately slow rate. A seasonal high water table is at a depth of about 1.5 to 3.0 feet during the period December through April. The shrink-swell potential is moderate.

Most of the acreage is used for cultivated crops. A small acreage is used for pasture or homesites.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Soybeans are the main crop, but corn, sugarcane, vegetables, rice, and sweet potatoes are also suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. Leaving crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. Most crops respond well to applications of fertilizer. Lime is generally needed.

This soil is well suited to pasture. Few limitations affect this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and vetch. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. The native vegetation was tall prairie grasses. If this soil is used as woodland, the main management concerns are moderate equipment limitations, compaction, and severe plant competition caused by the wetness. The trees suitable for planting are loblolly pine and slash pine. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Harvesting and site preparation can be scheduled for the drier seasons to minimize compaction.

This soil is moderately well suited to urban development. It is limited mainly by the wetness, the moderately slow permeability, low strength on sites for roads, and the moderate shrink-swell potential. A drainage system is needed if building foundations are constructed. Excess water can be removed by shallow ditches and proper grading. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. The moderately slow permeability and the seasonal high water table increase the possibility that septic tank absorption fields will fail. The moderately slow permeability can be overcome by increasing the size of the absorption field. A self-contained disposal unit can be used to properly dispose of sewage. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational development. It is limited mainly by the wetness and the moderately slow permeability. Good drainage is needed in intensively used areas, such as camp areas and playgrounds. The plant cover can be maintained by controlling traffic.

This soil is well suited to habitat for doves, quail, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIw. The woodland ordination symbol is 11W.

Cn—Coteau silt loam, 1 to 3 percent slopes. This very gently sloping, somewhat poorly drained soil is on convex ridgetops and side slopes in the uplands.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsoil extends a depth of about 60 inches. It is dark brown silty clay loam in the upper part; dark yellowish brown, dark brown, and light brownish gray silty clay loam in the next part; and dark brown, mottled silt loam in the lower part.

Included with this soil in mapping are a few small areas of Frost, Memphis, and Patoutville soils. Frost soils are in drainageways. They have a subsurface layer that extends into the subsoil. Memphis soils are higher on the landscape than the Coteau soil. They do not have gray mottles in the subsoil. Patoutville soils are in landscape positions similar to those of the Coteau soil. They have gray mottles in the upper part of the subsoil. Included soils make up about 15 percent of the map unit.

The Coteau soil has medium fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a moderately slow rate. A seasonal high water table is at a depth of about 1.5 to 3.0 feet during the period December through April. The shrink-swell potential is moderate.

Most areas are used for cultivated crops. A few areas are used as pasture or for homesites.

This soil is well suited to cultivated crops. It is limited mainly by the slope and a moderate hazard of erosion. The medium fertility may also be a problem. Soybeans are the main crop, but corn, cotton, sugarcane, vegetables, and sweet potatoes also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. The soil should be tilled on the contour or across the slope. Minimizing tillage for seedbed preparation and weed control helps to control runoff and erosion. Returning crop residue to the soil and minimizing tillage help to prevent crusting of the surface layer and compaction. Most crops respond well to applications of fertilizer. Lime is generally needed.

This soil is well suited to pasture. Few limitations affect this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and vetch. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. The trees suitable for planting are loblolly pine and slash pine. If this soil is used as woodland, the main management concerns are moderate equipment limitations, compaction, and severe plant competition caused by wetness. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Preparing sites and harvesting during the drier seasons help to minimize compaction.

This soil is moderately well suited to urban development. It is limited mainly by the wetness, the moderately slow permeability, low strength on sites for roads, and the moderate shrink-swell potential. The hazard of erosion is increased if the soil is left exposed during site development. Preserving the existing plant cover during construction helps to control erosion. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. The moderately slow permeability and the seasonal high water table increase the possibility that septic tank absorption fields will fail. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational development. It is limited mainly by the wetness and the moderately slow permeability. Erosion can be a hazard in intensively used areas, such as playgrounds. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining an adequate plant cover. The plant cover can be maintained by controlling traffic. Smoothing and shaping the slopes or using shallow ditches helps to remove excess water.

This soil is well suited to habitat for doves, quail, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIe. The woodland ordination symbol is 11W.

Co—Coteau-Patoutville-Frost silt loams, gently undulating. These soils are on narrow, parallel ridges and in swales in the uplands. The components of this map unit are so closely intermingled that it is not practical to map them separately at the scale selected for mapping. Typically, areas are about 35 percent Coteau soil, 35 percent Patoutville soil, and 25 percent Frost soil. The very gently sloping, somewhat poorly drained Coteau soil is on ridgetops. The very gently sloping, somewhat poorly drained Patoutville soil is on short side slopes. The poorly drained Frost soil is in drainageways and swales between ridges. The ridges are about 1 to 3 feet high and 100 to 500 feet wide. The swales are about 200 to 500 feet wide. Slopes range from less than 1 percent in the swales to about 3 percent on the ridges and side slopes.

Typically, the Coteau soil has a surface layer of dark grayish brown silt loam about 5 inches thick. The subsoil extends to a depth of about 60 inches. It is yellowish brown, strongly acid silty clay loam in the upper part, light brownish gray and dark yellowish brown silty clay loam in the next part, and mottled pale brown and dark yellowish brown silt loam in the lower part.

The Coteau soil has medium fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a moderately slow rate. A seasonal high water table is at a depth of about 1.5 to 3.0 feet during the period December through April. The shrink-swell potential is moderate.

Typically, the Patoutville soil has a surface layer of brown silt loam about 5 inches thick. The subsoil extends to a depth of about 60 inches. It is grayish brown, mottled silty clay loam in the upper part and light brownish gray, mottled silt loam in the lower part.

The Patoutville soil has medium fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of about 2 to 5 feet during the period December through May. The shrink-swell potential is moderate.

Typically, the Frost soil has a surface layer of dark grayish brown, mottled silt loam about 6 inches thick. The subsurface layer is grayish brown, mottled silt loam about 8 inches thick. The subsoil to a depth of about 60 inches is mottled silty clay loam. It is grayish brown in the upper part, gray in the next part, and light brownish gray in the lower part.

The Frost soil has medium fertility. Water runs off the surface at a very slow rate and stands in low areas for long periods after heavy rains. Water and air move through this soil at a slow rate. A seasonal high water table is within a depth of about 1.5 feet during the period December through April. An adequate amount of water is available to plants during most years. The shrink-swell potential is moderate.

Included with these soils in mapping are a few small areas of Memphis soils. These included soils are higher on the landscape than the Coteau, Patoutville, and Frost soils. They are well drained and do not have grayish mottles in the upper part of the subsoil. Also included are a few small areas of Coteau and Patoutville soils that have slopes of 3 to 5 percent. Included soils make up about 5 percent of the map unit.

Most areas of this map unit are used for cultivated crops. A few areas are used for pasture or homesites.

The Coteau, Patoutville, and Frost soils are moderately well suited to cultivated crops. They are limited mainly by wetness, the medium fertility, and a moderate hazard of erosion. Soybeans and sugarcane are the main crops, but corn, cotton, vegetables, and sweet potatoes also are suitable. The soils are friable and can be easily kept in good tilth. They can be worked throughout a wide range in moisture content. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. The soils should be tilled on the contour or across the slope. Minimizing tillage for seedbed preparation and weed control helps to control runoff and erosion. Returning crop residue to the soils and minimizing tillage help to prevent crusting of the surface layer and compaction. Most crops respond well to applications of fertilizer. Lime is generally needed.

These soils are well suited to pasture. Few limitations affect this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and vetch. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

These soils are well suited woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. The trees suitable for planting are loblolly pine and slash pine. If these soils are used as woodland, the main management concerns are moderate equipment limitations on the Coteau and Patoutville soils and severe equipment limitations on the Frost soil. Other concerns are compaction and severe plant competition caused by the wetness. Also, seedling mortality is moderate on the Frost soil because of the wetness. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Planting and harvesting only during the drier periods help to prevent rutting and compaction.

These soils are moderately well suited to urban development. They are limited mainly by the wetness, the moderately slow or slow permeability, low strength on sites for roads, and the moderate shrink-swell potential. A drainage system is needed on sites for buildings. Buildings can be constructed on mounds, above the expected level of flooding. The hazard of erosion is increased if areas on ridges and side slopes are left exposed during site development. Preserving the existing plant cover during construction helps to control erosion. The plant cover can be established and maintained by applying fertilizer, seeding, mulching, and shaping the slopes. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. The moderately slow or slow permeability and the seasonal high water table increase the possibility that septic tank absorption fields will fail. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing roads and streets helps to offset the limited ability of the soils to support a load.

These soils are moderately well suited to recreational development. The main limitations are the wetness and the moderately slow or slow permeability. Erosion is a hazard on sites for playgrounds and in camp areas. A good drainage system is needed in most recreational areas. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining an adequate plant cover. The plant cover can be maintained by controlling traffic. Cuts and fills should be seeded or mulched.

These soils are well suited to habitat for doves, quail, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The Coteau and Patoutville soils are in capability subclass IIe, and the Frost soil is in capability subclass IIIw. The woodland ordination symbol is 11W in areas of the Coteau soil, 10W in areas of the Patoutville soil, and 9W in areas of the Frost soil.

CR—Creole muck. This level, very poorly drained, very fluid and slightly fluid, mineral soil is in brackish marshes. It is ponded most of the time and frequently flooded. Because of poor accessibility, the number of observations made in these areas were fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soils. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown, very fluid muck about 7 inches thick. The next layer is black, slightly fluid mucky clay about 7 inches thick. Below this is greenish gray, slightly fluid clay about 10 inches thick. The underlying material to a depth of about 64 inches is greenish gray, very fluid clay.

Included with this soil in mapping are a few large areas of Bancker, Larose, Mermentau, and Scatlake soils. Also included are a few small areas of Hackberry soils. Bancker, Larose, and Scatlake soils are slightly lower on the landscape than the Creole soil. They are very fluid throughout. Hackberry and Mermentau soils are in the higher landscape positions. Hackberry soils contain more sand throughout than the Creole soil. Mermentau soils are firm and friable throughout. Also included are a few small areas of soils that are similar to the Creole soil, except that they are underlain by sandy material. Included soils make up about 15 percent of the map unit.

The Creole soil is ponded most of the time. It also is subject to frequent shallow flooding by the highest of the normal tides and to occasional deep flooding by storm tides. Tides are as much as 10 feet above normal elevations when hurricane and tropical storms pass through or near the parish. During periods when the soil is not flooded, the water table is about 1 foot above to 1 foot below the surface. This soil has a moderately low capacity to support a load. It is slightly saline or moderately saline. This soil has a low shrink-swell potential because it never dries enough to shrink. The total subsidence potential is low. Permeability is very slow.

The natural vegetation consists mainly of marshhay cordgrass. Other common plants are needlegrass rush, saltmarsh bulrush, Olney bulrush, big cordgrass, gulf cordgrass, and seashore saltgrass. Small areas are intermittently submerged and support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A few large areas are used as rangeland.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting areas and a fair supply of food for ducks, geese, and many other types of waterfowl. It also provides good habitat for muskrats. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is moderately well suited to rangeland. The main limitations are a moderately low load-supporting capacity, ponding, the flooding, and insects. Management is needed to maintain or improve the stands of seashore paspalum, seashore saltgrass, and marshhay cordgrass. Brush control, protection from wildlife, and proper location of stock water, walkways, and fences also are needed.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the flooding, the salinity, low strength, and the poor accessibility are severe limitations. This soil cannot support the weight of farm machinery. Where this soil is drained and protected from flooding, extreme acidity and subsidence are continuing limitations. Trees suitable for commercial timber production generally do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The flooding, the ponding, the salinity, and low strength are severe limitations. Also, hurricanes are common in areas of this soil. If the soil is drained and protected from flooding, it can subside. If the soil is drained, the very high shrink-swell potential of the clayey underlying material is a limitation.

The capability subclass is VIIw; Brackish Firm Mineral Marsh range site. No woodland ordination symbol is assigned.

Cw—Crowley silt loam, 0 to 1 percent slopes. This level, somewhat poorly drained soil is on broad, slightly convex ridges on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is about 9 inches thick. It is dark grayish brown silt loam. The subsurface layer is grayish brown, mottled silt loam about 7 inches thick. The subsoil to a depth of about 60 inches is gray and mottled. It is silty clay in the upper part and silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Frost, Kaplan, Mowata, and Patoutville soils. Frost and Mowata soils are lower on the landscape than the Crowley soil. They have a subsurface layer that extends into the subsoil. Kaplan soils are in landscape positions similar to those of the Crowley soil. They do not have an abrupt textural change between the subsurface layer and the subsoil. Patoutville soils are higher on the landscape than the Crowley soil and are loamy throughout. Also included are a few small areas of soils, mainly in the western part of the survey area, that are similar to the Crowley soil but that are coarser in the upper part of the subsoil and do not have an abrupt textural change from the subsurface layer to the subsoil. These included soils are on pimple mounds. These mounds are circular, convex mounds that range from 30 to 100 feet in diameter and from 1 to 3 feet in height. In many places the mounds have been mechanically smoothed. Included soils make up about 15 percent of the map unit.

The Crowley soil has medium fertility. Water runs very slowly off the surface and stands in low areas for short periods after heavy rains. Water and air move through this soil at a very slow rate. A seasonal high water table is perched above the clayey subsoil at a depth of 0.5 foot to 1.5 feet during the period December through April. The shrink-swell potential is high.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Rice and soybeans are the main crops, but corn, small grain, and sweet potatoes also are suitable. Proper row arrangement, field ditches, and vegetated outlets can help to remove excess water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The soil is friable and can be easily kept in good tilth. Traffic pans form easily, but they can be broken up by deep plowing or chiseling. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Crops respond well to lime and fertilizer.

This soil is well suited to pasture. The main limitation is the wetness. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, white clover, and wild winterpea. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Excess surface water can be removed by field ditches and vegetated outlets. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. Most areas, however, are used for cropland or homesites and are not likely to be used for commercial timber production. The native vegetation was tall prairie grasses. Seedling mortality is moderate because of the wetness. If the soil is used for timber production, the main limitations are severe equipment limitations, severe plant competition, and seedling mortality. The main trees suitable for planting are loblolly pine and slash pine. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Special site preparation, such as bedding and harrowing, using planting stock that is larger than normal, or using containerized planting stock can reduce the seedling mortality rate. Harvesting only during the drier periods helps to prevent rutting and compaction.

This soil is poorly suited to urban development. The main limitations are the wetness, the very slow permeability, low strength on sites for roads, and the high shrink-swell potential. Excess water can be removed by shallow ditches and proper grading. Many areas of this soil are artificially drained by storm sewers and ditches. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the very slow permeability. Lagoons or self-contained disposal units can be used to properly dispose of sewage. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with material that has a low shrink-swell potential. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to intensive recreational areas. It is limited mainly by the wetness and the very slow permeability. A good drainage system is needed in most recreational areas. The plant cover can be maintained by controlling traffic.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Habitat for waterfowl and furbearers can be improved by constructing shallow ponds.

The capability subclass is IIIw. The woodland ordination symbol is 11W.

Cx—Crowley silt loam, 1 to 3 percent slopes. This very gently sloping, somewhat poorly drained soil is on side slopes of low ridges on the Gulf Coast Prairies.

Typically, the surface layer is dark grayish brown silt loam about 6 inches thick. The subsurface layer is grayish brown, mottled silt loam about 6 inches thick. The subsoil extends to a depth of about 60 inches. It is grayish brown, mottled silty clay in the upper part; gray, mottled silty clay in the next part; and light brownish gray, mottled silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Acadia, Kaplan, and Mowata soils. Acadia soils are on side slopes along drainageways. Kaplan soils are in landscape positions similar to those of the Crowley soil. They do not have an abrupt change in texture between the subsurface layer and the subsoil. Mowata soils are in the lower areas. They have a subsurface layer that extends into the subsoil. Included soils make up about 15 percent of the map unit.

The Crowley soil has medium fertility. Water and air move through this soil at a very slow rate. Water runs off the surface at a slow rate. A seasonal high water table is perched above the clayey subsoil at a depth of about 0.5 foot to 1.5 feet during the period December through April. The shrink-swell potential is high.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is moderately well suited to cultivated crops. The main concern is the hazard of erosion. Limitations include wetness and the medium fertility. Soybeans and rice are the main crops, but corn and sweet potatoes also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. Excessive cultivation can result in the formation of a tillage pan. This pan can be broken up by subsoiling when the soil is dry. Leaving crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. The hazard of erosion can be reduced if fall grain is seeded early, stubble-mulch tillage is used, or tillage and seeding are on the contour or across the slope. Waterways can be shaped and seeded to perennial grasses. Crops respond well to additions of lime and fertilizer.

This soil is well suited to pasture. The suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, white clover, winterpea, and vetch. The main concern is the risk of erosion. The wetness and the medium fertility are minor limitations. Preparing seedbeds on the contour or across the slope if possible helps to control runoff. Grazing when the soil is wet results in compaction of the surface layer, poor tilth, and excessive runoff. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage.

This soil is moderately well suited to woodland. Most areas, however, are used for cropland or homesites and are not likely to be used for commercial timber production. The native vegetation was tall prairie grasses. Seedling mortality is moderate because of the wetness. If the soil is used for timber production, the main limitations are severe equipment limitations, severe plant competition, and the seedling mortality. The trees suitable for planting are loblolly pine and slash pine. Special site preparation, such as bedding and harrowing, using planting stock that is larger than normal, or using containerized planting stock can reduce the seedling mortality rate. Carefully managing reforestation after harvesting helps to control competition from undesirable plants. Planting and harvesting only during the drier periods help to prevent rutting and compaction.

This soil is poorly suited to urban development. The main limitations are the high shrink-swell potential, the very slow permeability, low strength on sites for roads, and the wetness. Preserving the existing plant cover during construction helps to control erosion. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the very slow permeability. Lagoons or self-contained disposal units can be used to properly dispose of sewage. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to recreational development. It is limited mainly by the wetness and the very slow permeability. Erosion is a hazard in intensively used areas, such as playgrounds. Cuts and fills should be seeded or mulched. Maintaining the plant cover helps to control runoff and erosion.

This soil is well suited to habitat for waterfowl, rabbits, quail, doves, and other small nongame species. Wildlife habitat can be improved by constructing shallow ponds and by planting and maintaining the appropriate vegetation.

The capability subclass is IIIe. The woodland ordination symbol is 11W.

Cy—Crowley-Patoutville silt loams. These nearly level, somewhat poorly drained soils are on broad flats and low ridges in the uplands. The components of this map unit are so closely intermingled that it is not practical to map them separately at the scale selected for mapping. Typically, areas are about 55 percent Crowley soil and about 30 percent Patoutville soil. The Crowley soil is on flats between ridges, and the Patoutville soil is on low ridges. Slopes range from less than 1 percent on the flats to about 2 percent on the ridges.

Typically, the Crowley soil has a surface layer of dark grayish brown silt loam about 8 inches thick. The subsurface layer is grayish brown, mottled silt loam about 7 inches thick. The subsoil is about 27 inches thick. It is dark gray, mottled silty clay in the upper part; grayish brown, mottled silty clay loam in the next part; and gray, mottled silty clay loam in the lower part. Below this to a depth of about 60 inches is light brownish gray, mottled silty clay loam.

The Crowley soil has medium fertility. Water runs off the surface at a very slow rate and stands in low areas for short periods after heavy rains. Water and air move through this soil at a very slow rate. Water is perched above the clayey subsoil at a depth of about 0.5 foot to 1.5 feet during the period December through April. The shrink-swell potential is high. The surface layer of this soil remains wet for long periods after heavy rains.

Typically, the Patoutville soil has a surface layer of dark brown silt loam about 7 inches thick. The subsurface layer is grayish brown, mottled silt loam about 5 inches thick. The subsoil to a depth of about 60 inches is mottled silty clay loam. It is grayish brown in the upper part, light brownish gray in the next part, and gray in the lower part.

The Patoutville soil has medium fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of about 2 to 5 feet during the period December through May. The shrink-swell potential is moderate.

Included with these soils in mapping are a few small areas of Frost and Mowata soils. The included soils are lower on the landscape than the Crowley and Patoutville soils. They have a surface layer that extends into the subsoil. They make up about 15 percent of the map unit.

Most areas of this map unit are used for cultivated crops. A few areas are used as pasture or for homesites.

The Crowley and Patoutville soils are moderately well suited to cultivated crops. They are limited mainly by wetness. The medium fertility is a minor limitation. The main suitable crops are rice, soybeans, sweet potatoes, vegetables, cotton, and corn. The soils are friable and can be easily kept in good tilth. They can be worked throughout a wide range in moisture content. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. Returning crop residue to the soils and minimizing tillage help to prevent crusting of the surface layer and compaction. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Most crops respond well to applications of fertilizer. Lime is generally needed.

These soils are well suited to pasture. Few limitations affect this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, white clover, vetch, and ryegrass. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

These soils are moderately well suited to woodland. Few areas, however, are expected to be used for commercial timber production. The native vegetation was tall prairie grasses. Seedling mortality is moderate on the Crowley soil because of the wetness. Plant competition is severe in areas of the Patoutville soil because of the wetness. If these soils are used for timber production, the main concerns in areas of the Crowley soil are severe equipment limitations, severe plant competition, and the seedling mortality caused by the wetness. The main concerns in areas of the Patoutville soil are moderate equipment limitations and plant competition. Both soils are susceptible to compaction if heavy equipment is used when the soils are moist. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling, which can eliminate unwanted weeds, brush, and trees. The trees suitable for planting are loblolly pine and slash pine.

These soils are poorly suited to urban development. The main limitations are the wetness, the high or moderate shrink-swell potential, the slow or very slow permeability, and low strength on sites for roads. A drainage system is needed if roads and building foundations are constructed. Excess water can be removed by shallow ditches and proper grading. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow or very slow permeability. The effects of the permeability and the wetness can be minimized by increasing the size of the absorption field. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. Properly designing roads helps to offset the limited ability of the soils to support a load. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants.

These soils are poorly suited to recreational development. They are limited mainly by the wetness and the slow or very slow permeability. A good drainage system is needed in most recreational areas. Maintaining a plant cover helps to control runoff and erosion.

These soils are well suited to habitat for doves, quails, and rabbits and other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The Crowley soil is in capability subclass IIIw, and the Patoutville soil is in capability subclass IIw. The woodland ordination symbol is 11W in areas of the Crowley soil and 10W in areas of the Patoutville soil.

DE—Delcomb muck. This level, very poorly drained, very fluid, organic soil is in brackish marshes. It is ponded most of the time and flooded frequently. Many areas are intermittently submerged and occur as small to large, shallow lakes. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown muck about 10 inches thick. The next 16 inches is black, very fluid muck. The next layer is mucky silty clay loam about 24 inches thick. It is very dark gray and very fluid in the upper part and black and slightly fluid in the lower part. The underlying material to a depth of about 60 inches is gray, firm silty clay loam.

Included with this soil is mapping are a few large areas of Lafitte soils and a few small areas of Andry and Clovelly soils. Andry soils are mineral. They are slightly higher on the landscape than the Delcomb soil. Clovelly and Lafitte soils are in landscape positions similar to those of the Delcomb soil. Clovelly soils have clayey, mineral underlying layers. Lafitte soils have an organic surface layer that is thicker than that of the Delcomb soil. Included soils make up about 20 percent of the map unit.

The Delcomb soil is ponded with several inches of moderately saline water most of the time. During storms, tidal floodwater is as much as 3 feet deep. This soil is slightly saline or moderately saline. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. The soil has a low load-supporting capacity. The loamy underlying material has a moderate shrink-swell potential. Permeability is moderately rapid or rapid in the organic layers and moderately slow in the mineral layers. The total subsidence potential is high.

The natural vegetation consists mainly of marshhay cordgrass. Other common plants include Olney bulrush, saltmarsh bulrush, needlegrass rush, and seashore saltgrass. Large areas are intermittently submerged and support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting and feeding areas for ducks, geese, and other waterfowl. It also provides habitat for American alligators and furbearers, such as nutria, mink, and muskrat. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the flooding, the salinity, low strength, and the poor accessibility are severe limitations. This soil generally cannot support the weight of farm machinery or grazing cattle. If this soil is drained and protected from flooding, extreme acidity and subsidence are continuing limitations. Trees suitable for commercial timber production generally do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The flooding, the ponding, the salinity, and low strength are severe limitations. If this soil is drained and protected from flooding, it subsides to elevations below sea level.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

Du—Dundee very fine sandy loam. This level, somewhat poorly drained soil is on natural levees along distributary channels of the Vermilion River. Slopes are less than 1 percent.

Typically, the surface layer is grayish brown very fine sandy loam about 7 inches thick. The subsoil is about 31 inches thick. It is grayish brown, mottled silty clay loam in the upper part; grayish brown, mottled clay loam in the next part; and light brownish gray, mottled sandy clay loam in the lower part. The substratum extends to a depth of about 60 inches. It is light brownish gray, mottled very fine sandy loam in the upper part and gray, mottled silt loam in the lower part.

Included with this soil in mapping are a few small areas of Coteau and Patoutville soils. These included soils are higher on the landscape than the Dundee soil. They have less sand in the subsoil than the Dundee soil. Also included are a few small areas of soils that are similar to the Dundee soil, except that they are grayer in the subsoil and are subject to rare flooding or they are more alkaline in the subsoil. Included soils make up about 15 percent of the map unit.

The Dundee soil has medium fertility. Water runs slowly off the surface. Water and air move through this soil at a moderately slow rate. The seasonal high water table is at a depth of about 1.5 to 3.5 feet during the period January through April. The shrink-swell potential is moderate.

Most of the acreage is used for cultivated crops or woodland. A small acreage is used as pasture.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Rice and corn are the main crops, but soybeans, sugarcane, vegetables, and cotton also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. Returning crop residue to the soil and minimizing tillage help to prevent crusting of the surface layer and compaction. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Crops respond well to additions of lime and fertilizer.

This soil is well suited to pasture. Few major limitations affect this use. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, white clover, vetch, and ryegrass. Excess surface water can be removed by shallow field ditches and suitable outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. If this soil is used as woodland, the main management concerns are moderate equipment limitations, the risk of compaction, and severe plant competition caused by the wetness. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from January through April. Planting and harvesting only during dry periods help to prevent rutting and compaction. The trees suitable for planting include cherrybark oak, sweetgum, eastern cottonwood, and water oak.

This soil is moderately well suited to urban development. The wetness, the moderately slow permeability, low strength on sites for roads, and the moderate shrink-swell potential are the main limitations. A drainage system is needed if roads and building foundations are constructed. Properly designing roads helps to offset the limited ability of the soil to support a load. Excess water can be removed by shallow ditches and proper grading. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the moderately slow permeability. The effects of the moderately slow permeability and the wetness can be minimized by increasing the size of the absorption field. A self-contained disposal unit or lagoons can be used to properly dispose of sewage. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. Mulching, applying fertilizer, and irrigating help to establish lawn grasses and other small-seeded plants.

This soil is moderately well suited to recreational development. It is limited mainly by the wetness and the moderately slow permeability. Good drainage is needed for intensively used areas, such as playgrounds and camp areas. The plant cover can be maintained by applying fertilizer and controlling traffic.

This soil is well suited to habitat for quail, doves, rabbits, deer, squirrels, and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIw. The woodland ordination symbol is 12W.

FA—Fausse clay. This level, very poorly drained soil is in backswamps on the flood plain of the Vermilion River. It is subject to ponding and frequent flooding. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark grayish brown, mottled clay about 4 inches thick. The subsoil is mottled clay about 40 inches thick. It is dark gray in the upper part and gray in the lower part. The substratum to a depth of about 60 inches is gray, mottled clay.

Included with this soil in mapping are a few small areas of Barbary soils and soils that are similar to the Fausse soil but are more acid throughout. Barbary soils are in landscape positions similar to those of the Fausse soil. They have very fluid underlying layers. Also included are a few small areas of soils that are similar to the Fausse soil but have less clay in the underlying layers. Included soils make up about 20 percent of the map unit.

The Fausse soil has high fertility. It is subject to frequent and brief to very long periods of flooding during any season of the year. It is generally ponded continuously from late fall to early summer. Floodwater typically is 1 to 3 feet deep but can be more than 4 feet deep in some places. Water runs off the surface at a very slow rate. During periods when the soil is not flooded, the water table is about 1.0 foot above to 1.5 feet below the surface. Water and air move through this soil at a very slow rate. This soil has a very high shrink-swell potential, but it seldom dries enough to crack. An adequate supply of water is available to plants during most years.

The natural vegetation consists mainly of baldcypress, water tupelo, green ash, red maple, and water hickory. Other common plants are pumpkin ash, buttonbush, alligatorweed, lizard tail, and bitter pecan.

Most areas of this soil support native vegetation and are used for recreation or as habitat for wetland wildlife.

This soil is poorly suited to woodland. Seedling mortality is severe because of the ponding and flooding. The main limitations affecting timber production are severe equipment limitations and seedling mortality. Conventional methods of harvesting are difficult to use. Hand planting nursery stock is generally necessary to establish or improve a stand. Machine planting is practical only in unusually dry years. Baldcypress is a tree suitable for planting.

This soil is well suited to habitat for wetland wildlife. It provides roosting areas for migratory ducks and food and nesting sites for wood ducks, squirrels, alligators, and nongame birds. This soil also provides suitable habitat for crawfish and furbearers, such as raccoons, nutria, and otter.

This soil is not suited to cultivated crops or pasture. The ponding and flooding are severe limitations.

This soil is not suited to urban uses or intensive recreational areas. The ponding and flooding are severe limitations. Other limitations are the very slow permeability, the very high shrink-swell potential, and low strength on sites for roads and streets. Major flood-control structures and extensive local drainage improvements are needed to protect this soil from ponding and flooding. Properly designing roads helps to offset the limited ability of the soil to support a load. Roads should be constructed above the expected level of flooding.

The capability subclass is VIIw. The woodland ordination symbol is 6W.

Fo—Frost silt loam. This level, poorly drained soil is on broad flats and along drainageways in the uplands. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown, mottled silt loam about 6 inches thick. The subsurface layer is gray, mottled silt loam about 9 inches thick. The subsoil extends to a depth of about 60 inches. It is gray, mottled silty clay loam and dark gray silt loam in the upper part and gray, mottled silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Crowley, Jeanerette, Patoutville, and Mowata soils. Crowley and Patoutville soils are higher on the landscape than the Frost soil. Crowley soils have more clay in the subsoil than the Frost soil. Patoutville soils do not have a subsurface layer that extends into the subsoil. Jeanerette and Mowata soils are in landscape positions similar to those of the Frost soil. Jeanerette soils have a thick, dark surface layer. Mowata soils have a clayey subsoil. Included soils make up about 15 percent of the map unit.

The Frost soil has medium fertility. Water runs off the surface at a very slow rate and stands in low areas for long periods after heavy rains. Water and air move through this soil at a slow rate. A seasonal high water table is within a depth of about 1.5 feet during the period December through April. The surface layer of this soil remains wet for long periods after heavy rains. The soil is subject to rare flooding by run-in water during unusually wet periods. The shrink-swell potential is moderate.

Most areas are used for cultivated crops. A few areas are used as pasture.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Rice and soybeans are the main crops, but cotton, corn, small grain, and vegetables also are suitable. This soil can be worked throughout a wide range in moisture content. A tillage pan forms easily if the soil is tilled when wet, but the pan can be broken up by chiseling or subsoiling. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent excessive erosion of ditches. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Crops respond well to lime and fertilizer.

This soil is well suited to pasture. Wetness is the main limitation. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, white clover, wild winterpea, vetch, bahiagrass, tall fescue, and ryegrass. Excess surface water can be removed by field ditches and vegetated outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. Most areas, however, are not likely to be used for commercial timber production. Seedling mortality is moderate because of the wetness. The main concerns in producing and harvesting timber are severe equipment limitations, severe plant competition, the risk of compaction, and seedling mortality. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from December to June. Harvesting and preparing sites only during dry periods help to prevent rutting and compaction. The main trees suitable for planting are loblolly pine and slash pine.

This soil is poorly suited to urban development. The wetness, the flooding, the moderate shrink-swell potential, low strength on sites for roads, and the slow permeability are the main limitations. A drainage system is needed if roads and building foundations are constructed. It also is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Excess water can be removed by shallow ditches and proper grading. Buildings can be constructed on mounds, above the expected level of flooding. The slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained disposal units can be used to properly dispose of sewage. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to recreational development. It is limited mainly by the wetness, the slow permeability, and the hazard of flooding. A good drainage system is needed in most recreational areas. The plant cover can be maintained by applying fertilizer and controlling traffic.

This soil is well suited to habitat for ducks, doves, quail, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 9W.

Fr—Frost silt loam, occasionally flooded. This level, poorly drained soil is along drainageways in the uplands. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown, mottled silt loam about 6 inches thick. The subsurface layer is about 22 inches thick. It is grayish brown, mottled silt loam in the upper part and grayish brown, mottled silty clay loam in the lower part. The subsoil to a depth of about 60 inches is mottled silty clay loam. It is grayish brown in the upper part and light brownish gray in the lower part.

Included with this soil in mapping are a few small areas of Jeanerette, Judice, and Mowata soils. Jeanerette soils are higher on the landscape than the Frost soil. They have a dark surface layer. Judice and Mowata soils are in landscape positions similar to those of the Frost soil. They have a clayey subsoil. Included soils make up about 15 percent of the map unit.

The Frost soil has medium fertility. Water runs off the surface at a very slow rate. Water and air move through this soil at a slow rate. A seasonal high water table is within a depth of 1.5 feet during the period December through April. This soil is subject to brief to long periods of flooding. The surface layer of this soil remains wet for long periods after heavy rains. The shrink-swell potential is moderate.

Most areas are used as pasture. A few areas are used as cropland.

This soil is moderately well suited to pasture. The main limitation is wetness. Flooding is a hazard. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, bahiagrass, vetch, and tall fescue. Excess surface water can be removed by field ditches and vegetated outlets. The use of equipment is limited by the wetness and flooding. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. During periods of flooding, cattle should be moved to adjacent protected areas or to pastures at higher elevations. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is poorly suited to cultivated crops. It is limited by the flooding, the medium fertility, and the wetness. If the soil is protected from flooding in late spring and early summer, most climatically adapted crops can be grown. Soybeans and rice are the main crops. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing also help to remove excess water. Returning crop residue to the soil and minimizing tillage help to prevent crusting of the surface layer and compaction. Most crops respond well to applications of fertilizer. Lime is generally needed.

This soil is moderately well suited to woodland. Most areas, however, are not likely to be used for commercial timber production. Seedling mortality is moderate because of the wetness. The main concerns in producing and harvesting timber are severe equipment limitations, severe plant competition, compaction, and seedling mortality. Conventional methods of harvesting timber can be used, but their use may be limited during rainy periods, generally from December through June. Planting and harvesting only during dry periods help to prevent rutting and compaction. If site preparation is not adequate, competition from undesirable plants can prevent or prolong natural or artificial reestablishment of trees. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling, which can eliminate unwanted weeds, brush, and trees. The main trees suitable for planting are loblolly pine and slash pine.

This soil is poorly suited to most urban uses. It is generally not suited to dwellings. The main limitations are the wetness, the slow permeability, low strength on sites for roads, and the moderate shrink-swell potential. Flooding is a hazard. Buildings can be constructed on mounds, above the expected level of flooding. Constructing levees and diverting water away from the urban areas can provide protection from flooding. Drainage can be provided by shallow ditches. Roads can be constructed above the level of flooding. Properly designing roads helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to recreational development. It is limited mainly by the wetness, the slow permeability, and the flooding. Protection from flooding is needed. Good drainage also is needed in intensively used areas, such as camp areas, picnic areas, and playgrounds. The plant cover can be maintained by controlling traffic.

This soil is well suited to habitat for quail, doves, ducks, geese, and small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IVw. The woodland ordination symbol is 9W.

Fz—Frozard silt loam. This level, somewhat poorly drained soil is on broad low ridges in the uplands. It has a moderately high content of sodium in the subsoil.

Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown silt loam about 7 inches thick. The subsoil to a depth of about 36 inches is mottled silty clay loam. It is dark gray in the upper part, dark grayish brown in the next part, and grayish brown in the lower part. The subsoil between depths of 36 and 80 inches is mottled silt loam. It is grayish brown in the upper part and yellowish brown in the lower part.

Included with this soil in mapping are a few small areas of Jeanerette and Patoutville soils. The included soils have a moderately high content of sodium in the subsoil. Jeanerette soils are slightly lower on the landscape than the Frozard soil, and Patoutville soils are slightly higher. Included soils make up about 10 percent of the map unit.

The Frozard soil has medium fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a slow rate. A perched seasonal high water table is at a depth of 1 to 3 feet during the period December through April. The surface layer of this soil remains wet for long periods after heavy rains. The moderately high concentration of sodium in the upper part of the subsoil restricts root development and limits the amount of water available to plants. Plants generally suffer from a lack of water during dry periods in the summer and fall of most years. The shrink-swell potential is moderate.

Most areas are used for cultivated crops or for building site development. A few areas are used as pasture.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness in spring and droughtiness in summer and fall. The accumulations of sodium in the upper part of the subsoil restrict plant growth. The medium fertility is a minor limitation. Sugarcane is the main crop, but rice, corn, sweet potatoes, cotton, vegetables, and grain sorghum also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets help to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Deep cuts, however, may expose the upper part of the subsoil, which is moderately high in sodium. Proper irrigation systems are needed for the production of rice. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Most crops respond well to applications of fertilizer. Where an adequate supply of water is available, supplemental irrigation can reduce the damage to crops during dry periods in most years.

This soil is well suited to pasture. It is limited mainly by the wetness in spring and the droughtiness in summer and fall. The content of sodium in the upper part of the subsoil also limits the growth of some pasture plants. The medium fertility is a minor limitation. Plants that can tolerate the concentrations of sodium include common bermudagrass, ryegrass, improved bermudagrass, bahiagrass, and tall fescue. Excess surface water can be removed by shallow field ditches and vegetated outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer is needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. No areas, however, are expected to be used for commercial timber production. The native vegetation was tall prairie grasses. If the soil is used for timber production, the wetness could limit the use of equipment. The surface layer is easily compacted when moist. Harvesting only during dry periods helps to prevent rutting and compaction. The main trees suitable for planting are sweetgum, water oak, and green ash.

This soil is poorly suited to urban development. The wetness, low strength on sites for roads, the moderate shrink-swell potential, and the slow permeability are the main limitations. A drainage system is needed if roads and building foundations are constructed. Excess water can be removed by shallow ditches and proper grading. A drainage system is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. The slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. The effects of the slow permeability and the high water table can be minimized by increasing the size of the absorption field. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to intensive recreational areas. It is limited mainly by the wetness and the slow permeability. A good drainage system is needed in most recreational areas. The plant cover can be maintained by applying fertilizer and controlling traffic.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 2W.

GE—Ged clay. This level, very poorly drained, mineral soil is in freshwater marshes. It is ponded most of time and flooded frequently. Because of poor accessibility, the number of observations made in these areas was fewer than most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark gray, very fluid clay about 8 inches thick. The next layer is dark gray, slightly fluid clay about 6 inches thick. The subsoil to a depth of about to 60 inches is gray, mottled clay.

Included with this soil in mapping are a few large areas of Allemands and Larose soils. The included soils are in landscape positions similar to those of the Ged soil. Allemands soils are organic. Larose soils are very fluid throughout. Included soils make up about 20 percent of the map unit.

The Ged soil is ponded with several inches of water most of the time. During storms, tidal floodwater is as much as 3 feet deep. During periods when the soil is not flooded, the water table is within a depth of 1 foot. Permeability is very slow. The soil is generally firm enough to support livestock grazing. The shrink-swell potential is high.

The natural vegetation consists mainly of maidencane, bulltongue, and alligatorweed. Other common plants are marshhay cordgrass, cattail, common reed, savannah panicum, eastern gamagrass, lotus, California bulrush, squarestem spikesedge, switchgrass, longtom, Jamaica sawgrass, giant cutgrass, and Carolina waterhyssop.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used as rangeland.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting and feeding areas for ducks, geese, and many other types of waterfowl. This soil also provides habitat for American alligators and furbearers, such as nutria, muskrat, mink, and raccoon. Hunting waterfowl is a popular sport in areas of this soil. The main concerns in managing wildlife habitat are controlling water levels and preventing intrusions of salt water.

This soil is moderately well suited to rangeland. The major concerns on marsh rangeland are the flooding and wildfires. Installing cattle walkways improves grazing distribution. During periods of flooding, cattle should be moved to adjacent pastures and higher elevations. Protection from uncontrolled wildfires is needed.

Unless drained and protected from flooding, this soil is not suited to cropland, pasture, or woodland. If good water control is maintained by a system of dikes, ditches, and pumps, the soil can be used for rice.

This soil is not suited to urban or intensive recreational uses. The ponding, the very slow permeability, low strength on sites for roads, and the high shrink-swell potential are the main limitations. Flooding is a hazard.

The capability subclass is VIIw; Fresh Firm Mineral Marsh range site. No woodland ordination symbol is assigned.

Gy—Gueydan muck. This level, poorly drained, firm, mineral soil is in former freshwater marshes that are drained and protected from most floods. Slopes are less than 1 percent.

Typically, the surface layer is black muck about 6 inches thick. The subsoil is about 40 inches thick. It contains a network of permanent cracks in the upper part. It is grayish brown silty clay in the upper part, dark gray clay in the next part, and gray, mottled clay in the lower part. The next layer is dark gray, mottled silty clay about 14 inches thick. Below this to a depth of about 80 inches is gray, mottled clay.

Included with this soil in mapping are a few small areas of Ged, Judice, and Midland soils. Ged soils are in landscape positions similar to those of the Gueydan soil. They have a slightly fluid surface layer. Judice and Midland soils are higher on the landscape than the Gueydan soil. They do not have a network of cracks in the subsoil. Also included are a few small areas of organic soils in landscape positions lower than those of the Gueydan soil. Included soils make up about 20 percent of the map unit.

The Gueydan soil is protected from most floods by levees and drained with pumps. Under normal conditions, the water table is at a depth of 1 to 3 feet. After high intensity rains of long duration, the water table is near the surface for short periods. Flooding is rare and occurs only during hurricanes or other severe storms. Water and air move very slowly through the soil and rapidly through the network of permanent cracks in the subsoil. The available water capacity is moderate or high. This soil has high fertility. The content of organic matter is very high. The total subsidence potential is low. The upper part of the soil typically becomes increasingly acid as the organic matter decomposes. In places where the soil has subsided, the water table is near the surface most of the time. The shrink-swell potential is very high.

Most areas are used for cultivated crops. A few areas are used as rangeland.

This soil is poorly suited to pasture. Common bermudagrass, Dallisgrass, tall fescue, and ryegrass are suitable pasture plants. Wetness is the main limitation. Adequate water control is needed. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is poorly suited to cultivated crops. The wetness and acidity in the surface layer are the main limitations. Rice and soybeans are the main crops, but grain sorghum also is suitable. This soil is difficult to keep in good tilth. It can be worked only within a narrow range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Flood irrigation is needed for the production of rice. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Applications of lime and fertilizer generally are needed.

This soil is poorly suited to woodland. Native trees did not grow on this soil before it was drained. Wetness is the main limitation. Only water-tolerant trees should be planted. Seedling mortality is severe because of the wetness. The main limitations affecting timber production are severe equipment limitations and seedling mortality. The trees suitable for planting are green ash, Nuttall oak, and water oak. The potential for timber production is high.

This soil is moderately well suited to rangeland. Wetness is the main limitation. The surface layer can become soft and boggy during wet periods.

This soil is poorly suited to urban and intensive recreational uses. The wetness, the very slow permeability, the very high shrink-swell potential, and low strength on sites for roads are the main limitations. Flooding is a hazard. The flooding is rare, but it can occur during intense rainfall or when pumps or protection levees fail. Adequate water control is needed. Constructing buildings on piers, adding loamy fill material to the soil, and controlling the level of the water table help to support and stabilize buildings. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with materials that have a low shrink-swell potential. In areas where housing density is medium or high, community sewage systems are needed to prevent the contamination of ground water.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants. Shallow ponds can be constructed to provide open water areas for waterfowl and furbearers.

The capability subclass is IIIw; Fresh Firm Mineral Marsh range site. No woodland ordination symbol is assigned.

Hb—Hackberry sandy clay loam, overwash. This level, somewhat poorly drained soil is on the toe slopes of low ridges. The ridges are generally parallel to the coast of the Gulf of Mexico. Slopes are less than 1 percent.

Typically, the surface layer is very dark gray sandy clay loam about 7 inches thick. The subsoil is about 15 inches thick. It is dark gray, mottled very fine sandy loam in the upper part and dark grayish brown, mottled loamy fine sand in the lower part. The substratum to a depth of about 60 inches is brown and grayish brown, mottled fine sand, shell fragments, and sand.

Included with this soil in mapping are a few small areas of Bancker, Cheniere, Creole, and Mermentau soils. Bancker and Creole soils are in nearby marshes. They have clayey underlying material. Cheniere soils are higher on the landscape than the Hackberry soil and are somewhat excessively drained. They do not have a distinct subsoil. Mermentau soils are in the lower landscape positions. They have a clayey subsoil.

The Hackberry soil has medium fertility. Water and air move through the surface layer at a slow rate and through the subsoil at a rapid rate. Water runs off the surface at a slow rate. Effective rooting depth is limited by a high water table that is at a depth of about 1 to 4 feet throughout the year. An adequate amount of water is available to plants during most years. This soil is subject to rare flooding by storm tidal surges when hurricanes and tropical storms pass through or near the parish. The shrink-swell potential is low.

Most areas are used for pasture or homesites (fig. 4). Other areas are used for industrial sites, gardens, or orchards.

This soil is moderately well suited to pasture. The main limitation is wetness. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, bahiagrass, and ryegrass. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage.

This soil is moderately well suited to cultivated crops. It is limited mainly by the wetness. The medium fertility is a minor limitation. The suitable crops are corn, soybeans, and vegetables. The high water table generally limits the suitability of this soil to shallow-rooted crops. Crops can be damaged by floods in some years. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in

Figure 4.—Rangeland in an area of Hackberry sandy clay loam, overwash. Live oak trees provide shade for cattle.

moisture content. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Most crops respond well to applications of fertilizer.

This soil is poorly suited to woodland. The native vegetation mainly consists of tall prairie grasses, forbs, and shrubs. Few sugarberry and live oak trees also grow in places. The main concern in producing and harvesting timber is the wetness, which limits the use of equipment. The soil also is susceptible to rutting and compaction if heavy equipment is used when the soil is moist. Only trees that can tolerate seasonal wetness should be planted. The trees suitable for planting are sugarberry and live oak. Preparing sites and harvesting only during dry periods help to prevent rutting and compaction.

This soil is poorly suited to urban development. Population growth, however, has resulted in increased use of this soil for homesites. The main limitation is the wetness. Flooding is a hazard during tropical storms. Seepage of effluent is a management concern on sites for sanitary facilities. Additions of loamy fill material and a drainage system are needed to make areas of this soil more suitable for urban uses. Buildings can be constructed on pilings or mounds, above the expected level of flooding. It is difficult to establish plants in areas where the surface layer has been removed, exposing the sandy subsoil. Mulching and applying fertilizer in cut areas help to establish plants. Plants that can tolerate a seasonal high water table should be selected if drainage is not provided. Cutbanks are not stable and are subject to slumping. The high water table increases the possibility that septic tank absorption fields will fail. Self-contained disposal units can be used to properly dispose of sewage.

This soil is poorly suited to recreational development. It is limited mainly by the wetness. A good drainage system is needed in intensively used areas, such as playgrounds and camp areas. The plant cover can be maintained by applying fertilizer and controlling traffic.

This soil has fair potential as habitat for openland wildlife. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. No woodland ordination symbol is assigned.

Hm—Hackberry-Mermentau complex, gently undulating. These somewhat poorly drained soils are on low ridges and in swales near the coast of the Gulf of Mexico. The components of this map unit are so closely intermingled that it is not practical to map them separately at the scale selected for mapping. Typically, areas are about 60 percent Hackberry soil and 30 percent Mermentau soil. The Hackberry soil is on ridges. It has slopes of 1 to 3 percent. The Mermentau soil is in swales. It has slopes of less than 1 percent. The ridges are about 1 to 3 feet high and 50 to 300 feet wide. The swales are about 50 to 300 feet wide. Areas are long and narrow and range from 50 to 1,000 acres in size.

Typically, the Hackberry soil has a surface layer of very dark gray fine sandy loam about 3 inches thick. The next layer is dark grayish brown fine sandy loam about 5 inches thick. The subsoil is about 23 inches thick. It is brown, mottled loamy fine sand in the upper part; grayish brown, mottled fine sandy loam in the next part; and brown, mottled fine sand in the lower part. The substratum to a depth of about 60 inches is brown and grayish brown sand in the upper part and dark greenish gray and olive sand in the lower part. Marine shells and fragments of shells are in the lower part of the profile.

The Hackberry soil has medium fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a rapid rate. Effective rooting depth is limited by a high water table that is at a depth of about 1 to 4 feet throughout the year. An adequate amount water is available to plants during most years. This soil is subject to rare flooding by tidal waves during tropical storms. The shrink-swell potential is low.

Typically, the Mermentau soil has a surface layer of very dark gray clay about 9 inches thick. The subsoil is mottled clay about 12 inches thick. It is dark gray in the upper part and gray in the lower part. The substratum is gray, mottled clay loam about 21 inches thick. The next layer to a depth of about 60 inches is greenish gray clay.

The Mermentau soil has high fertility. Water runs off the surface at a slow rate and stands in low areas for long periods after heavy rains. Water and air move through this soil at a very slow rate. A water table is within a depth of about 3.5 feet throughout the year. This soil is subject to frequent shallow flooding during heavy rains. The surface layer is very sticky when wet and hard when dry. The shrink-swell potential is high. An adequate amount of water is available to plants during most years. The soil is slightly saline or moderately saline throughout.

Included with these soils in mapping are many small areas of Bancker, Cheniere, Creole, Larose, and Scatlake soils. Bancker, Creole, Larose, and Scatlake soils are in nearby marshes. They are very fluid or slightly fluid throughout. Cheniere soils are higher on the landscape than the Hackberry soil and are somewhat excessively drained. They do not have a distinct subsoil. Also included are many small areas of soils similar to the Hackberry soil, except that they are more saline, have more thin strata of fine-textured material, and have a darker and thicker surface layer. In places these similar soils make up more of the map unit than the Hackberry soil. Included soils make up about 10 percent of the map unit.

The natural vegetation on the Hackberry soil is mainly common bermudagrass, common carpetgrass, and rattail smutgrass. The natural vegetation on the Mermentau soil is mainly seashore paspalum, seashore saltgrass, common reed, saltmarsh bulrush, marshhay cordgrass, and needlegrass rush.

Most of the acreage is pasture. A small acreage is used for homesites, gardens, rangeland, or industrial sites.

These soils are poorly suited to pasture, mainly because the Mermentau soil is subject to frequent shallow flooding. The main limitation is wetness. The medium fertility also is a limitation in the Hackberry soil. The main suitable pasture plants are bahiagrass, common bermudagrass, and improved bermudagrass. During periods of flooding, cattle should be moved to pastures that are protected from flooding or to pastures at the higher elevations. Land grading or smoothing can help to remove excess surface water and reduce the hazard of flooding in areas of the Mermentau soil. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage.

These soils are poorly suited to cultivated crops. Vegetables are the main crops. The main limitations are the wetness and salinity. The medium fertility also is a limitation in the Hackberry soil. Frequent flooding is a hazard in areas of the Mermentau soil. The high water table generally limits the suitability of these soils to shallow-rooted crops. Land grading and smoothing can improve surface drainage and reduce the hazard of flooding. In areas of the Hackberry soil, deep cuts made during land grading and smoothing operations can expose the sandy subsoil. Tilth and fertility can be improved by returning crop residue to the soils. Most crops respond well to applications of fertilizer.

The Hackberry soil is poorly suited to woodland. The

Mermentau soil is generally not suited to woodland. Few areas are expected to be used for commercial timber production. Common trees include sugarberry and live oak. Seedling mortality is moderate because of the flooding and wetness. The main concerns in producing and harvesting timber are severe equipment limitations, compaction, and the seedling mortality. Preparing sites and harvesting only during dry periods help to prevent compaction.

These soils are moderately well suited to rangeland. The main limitations are the flooding in areas of the Mermentau soil and insects. Management is needed to maintain or improve the stands of seashore paspalum, seashore saltgrass, and marshhay cordgrass. Brush control, protection from wildlife, controlled burning, and grazing management also are needed.

These soils are poorly suited to urban development. The wetness and flooding are the main limitations. Population growth has resulted in an increase in the use of these soils as homesites. The Hackberry soil is better suited to building sites than the Mermentau soil because it floods less often. Other limitations are a high shrink-swell potential, the very slow permeability, and the salinity. Drainage and additions of loamy fill material are needed to improve these soils for most urban uses. Buildings can be constructed on pilings or mounds, above the expected level of flooding. It is difficult to establish plants in areas of the Hackberry soil where the surface layer has been removed, exposing the sandy subsoil. Mulching and applying fertilizer in cut areas help to establish plants. Plants that can tolerate the salinity and a seasonal high water table should be selected. In areas of the Hackberry soil, cutbanks are not stable and are subject to slumping. The very slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. If flooding is controlled, self-contained disposal units can be used to properly dispose of sewage. Properly designing foundations and footings and diverting runoff away from buildings help to prevent the structural damage caused by shrinking and swelling in areas of the Mermentau soil.

These soils are poorly suited to recreational development. The main limitations are the wetness and the very slow permeability. Flooding is a hazard. Drainage and protection from flooding are needed for most recreational uses.

These soils have fair potential as habitat for openland wildlife. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The Hackberry soil is in capability subclass IIIe, and the Mermentau soil is in capability subclass VIIw. The Hackberry soil is in Fresh Sandy Cheniers range site, and the Mermentau soil is in Brackish Firm Mineral Marsh range site. No woodland ordination symbol is assigned.

Ja—Jeanerette silt loam. This level, somewhat poorly drained soil is on broad flats in the uplands. Slopes are less than 1 percent.

Typically, the surface layer is black silt loam about 6 inches thick. The subsoil is silty clay loam about 50 inches thick. The upper part is black, the next part is dark grayish brown and mottled, and the lower part is grayish brown and gray and is mottled. The substratum to a depth of about 60 inches is gray, mottled silty clay loam.

Included with this soil in mapping are a few small areas of Frost, Frozard, and Patoutville soils. The included soils have a surface layer that is lighter colored than that of the Jeanerette soil. Frost soils are lower on the landscape than the Jeanerette soil, and Frozard and Patoutville soils are higher. Included soils make up about 10 percent of the map unit.

The Jeanerette soil has high fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a moderately slow rate. A seasonal high water table is at a depth of about 1.0 to 2.5 feet during the period December through April. This soil is subject to rare flooding during unusually wet periods. The surface layer of this soil remains wet for long periods after heavy rains. An adequate supply of water is available to plants during most years. The shrink-swell potential is moderate.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is well suited to cultivated crops. It is limited mainly by wetness. Sugarcane is the main crop, but rice, corn, cotton, soybeans, vegetables, and grain sorghum also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Most crops respond well to additions of fertilizer. Lime is generally not needed.

This soil is well suited to pasture. Few limitations affect this use. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, small grain, white clover, and vetch. Excess surface water can be removed by shallow field ditches and vegetated outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition.

This soil is well suited to woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. The native vegetation was tall prairie grasses. If the soil is used for timber production, the wetness can limit the use of equipment and cause moderate seedling mortality. Also, the surface layer is subject to compaction and competition from understory plants can be severe. The main trees suitable for planting are green ash, eastern cottonwood, American sycamore, and cherrybark oak. Planting and harvesting only during the drier periods help to prevent compaction. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling, which can eliminate unwanted weeds, brush, and trees. Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduce seedling mortality, and increase early seedling growth.

This soil is poorly suited to urban development. The wetness, the moderate shrink-swell potential, low strength on sites for roads, and the moderately slow permeability are the main limitations. Flooding is a hazard. A drainage system is needed if roads and building foundations are constructed. Excess water can be removed by shallow ditches and proper grading. Buildings can be constructed on mounds, above the expected level of flooding. Flooding can be controlled, but major structures, such as levees and diversions, are needed. A drainage system is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. The moderately slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. The effects of the permeability and the water table can be minimized by increasing the size of the absorption field. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is poorly suited to recreational development. It is limited mainly by the wetness. Flooding is a hazard in camp areas. A drainage system is needed in most recreational areas. Flooding can be controlled, but major structures, such as levees and diversions, are needed.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIw. The woodland ordination symbol is 4W.

Jd—Judice silty clay loam. This level, poorly drained soil is in broad depressional areas on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is very dark gray, mottled silty clay loam about 6 inches thick. The next layer is very dark gray, mottled silty clay about 9 inches thick. The subsoil extends to a depth of 60 inches or more. It is dark gray, mottled silty clay in the upper part; gray, mottled silty clay in the next part; and gray, mottled silty clay loam in the lower part.

Included with this soil in mapping are a few small areas of Midland, Morey, and Mowata soils. The included soils are in landscape positions similar to those of the Judice soil. Midland soils have a surface layer that is lighter colored than that of the Judice soil. Morey and Mowata soils are loamy throughout. Included soils make up about 10 percent of the map unit.

The Judice soil has high fertility. Water runs off the surface at a very slow rate and stands in low areas for long periods after heavy rains. Water and air move through this soil at a very slow rate. A seasonal high water table is within a depth of about 1.5 feet during the period December through April. An adequate supply of water is available to plants during most years. This soil is subject to rare flooding during unusually wet periods. The surface layer of this soil dries slowly after it is wetted. It is slightly sticky when wet and hard when dry. The shrink-swell potential is high.

Most areas are used for cultivated crops. A few areas are used as pasture. Crawfish are commonly raised on this soil between cropping seasons.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness. Also, the soil is difficult to keep in good tilth. It can be worked only within a narrow range in moisture content. Rice is the main crop, but soybeans and grain sorghum also are suitable. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Flood irrigation is needed for the production of rice. The content of organic matter and tilth can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Most crops respond well to applications of fertilizer.

This soil is well suited to pasture. Wetness is the main limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, Dallisgrass, ryegrass, tall fescue, and white clover. Excess surface water can be removed by field ditches and vegetated outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer is generally needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. All areas, however, are used as cropland or pasture and are not likely to be used for commercial timber production. The native vegetation was tall prairie grasses. Seedling mortality is severe because of the wetness. The main limitations affecting timber production are severe equipment limitations, severe plant competition, rutting and compaction, and seedling mortality. The trees suitable for planting are cherrybark oak, green ash, and American sycamore. Special site preparation, such as harrowing and bedding, helps to establish seedlings, reduce seedling mortality, and increase early seedling growth. Site preparation helps to control initial plant competition, and spraying helps to control subsequent growth. Planting and harvesting only during the drier periods help to prevent rutting and compaction.

This soil is poorly suited to urban development. The main limitations are the wetness, the very slow permeability, low strength on sites for roads, and the high shrink-swell potential. Flooding is a hazard. Drainage and other water-control systems are needed to remove excess water and control flooding. The very slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. If flooding is controlled, lagoons or self-contained disposal units can be used to properly dispose of sewage. Buildings can be constructed on mounds, above the expected level of flooding. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with material that has a low shrink-swell potential. Properly designing roads helps to offset the limited ability of the soil to support a load. A drainage system is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Flooding can be controlled by constructing levees and diversions.

This soil is poorly suited to recreational development. It is limited mainly by the wetness and the very slow permeability. Flooding is a hazard in camp areas. A drainage system is needed in most recreational areas. Flooding can be controlled by constructing levees and diversions.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 7W.

Jk—Judice-Kaplan complex, gently undulating. These soils are in narrow, parallel swales and on ridges on the Gulf Coast Prairies. The components of this map unit are so closely intermingled that it is not practical to map them separately at the scale selected for mapping. Typically, areas are about 50 percent Judice soil and 35 percent Kaplan soil. The level, poorly drained Judice soil is on flats and in swales between ridges. The very gently sloping, somewhat poorly drained Kaplan soil is on low ridges. The swales and flats are about 200 to 500 feet wide. The ridges are 1 to 3 feet high and 100 to 400 feet wide. Slopes range from less than 1 percent on the flats and swales to about 3 percent on the ridges.

Typically, the Judice soil has a surface layer of black silty clay loam about 6 inches thick. The subsurface layer is black silty clay about 7 inches thick. The subsoil to a depth of 60 inches or more is mottled silty clay. It is dark gray in the upper part, olive gray in the next part, and gray in the lower part.

The Judice soil has high fertility. Water runs off the surface at a very slow rate and stands in low areas for long periods after heavy rains. Water and air move through this soil at a very slow rate. A seasonal high water table is within a depth of about 1.5 feet during the period December through April. An adequate supply of water is available to plants during most years. This soil is subject to rare flooding during unusually wet periods. The surface layer of the soil dries slowly after it is wetted. It is slightly sticky when wet and hard when dry. The shrink-swell potential is high.

Typically, the Kaplan soil has a surface layer of dark grayish brown silt loam about 4 inches thick. The next layer is dark gray, mottled silt loam about 4 inches thick. The subsoil to a depth of about 67 inches is mottled silty clay loam. In sequence downward, it is dark gray, grayish brown, gray, light brownish gray, and gray.

The Kaplan soil has medium fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a slow rate. A seasonal high water table ranges from a depth of 1.5 to 2.5 feet during the period December through April. The shrink-swell potential is high.

Included with these soils in mapping are a few small areas of Crowley, Ged, Midland, Mowata, and

Patoutville soils. Crowley soils are in landscape positions similar to those of the Kaplan soil. They have an abrupt textural change between the subsurface layer and subsoil. Ged soils are lower on the landscape than the Judice soil. They are very poorly drained and have a very fluid surface layer. Midland and Mowata soils are in landscape positions similar to those of the Judice soil. Midland soils are similar to the Judice soil but do not have a thick, dark surface layer. Mowata soils are similar to the Judice soil but have a subsurface layer that extends into the subsoil. Patoutville soils are higher on the landscape than the Kaplan soil, and they have less clay in the subsoil. Also included are soils that are similar to the Kaplan soil except that they have less clay in the subsoil and have a fragipan. These similar soils are higher on the landscape than the Kaplan soil. Included soils make up about 15 percent of the map unit.

Most areas of this map unit are used for cultivated crops or woodland. A few areas are used for pasture or homesites.

The Judice and Kaplan soils are moderately well suited to cultivated crops. They are limited mainly by wetness. The medium fertility is a minor limitation in the Kaplan soil. Rice and soybeans are the main crops, but corn and grain sorghum also are suitable. The Judice soil is difficult to keep in good tilth. It can be worked only within a narrow range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Flood irrigation is needed for the production of rice. The content of organic matter and tilth can be maintained and erosion can be controlled by using all crop residue, plowing under cover crops, minimizing tillage, and selecting a suitable cropping system. Most crops respond well to applications of fertilizer.

These soils are well suited to pasture. Wetness is the main limitation. The medium fertility is a minor limitation in the Kaplan soil. The main suitable pasture plants are common bermudagrass, improved bermudagrass, Dallisgrass, ryegrass, tall fescue, and white clover. Excess surface water can be removed by field ditches and vegetated outlets. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer is generally needed for the optimum growth of grasses and legumes.

These soils are moderately well suited to woodland. The main concerns in producing and harvesting timber are moderate or severe equipment limitations, rutting and compaction, and severe plant competition caused by the wetness. Seedling mortality is severe in areas of the Judice soil because of the wetness. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Only trees that can tolerate seasonal wetness should be planted. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from December through April. The trees suitable for planting are green ash, water oak, sweetgum, and American sycamore. Special site preparation, such as bedding and harrowing, using planting stock that is larger than normal, or using containerized planting stock can reduce the seedling mortality rate. Planting and harvesting only during the drier periods help to prevent rutting and compaction.

These soils are poorly suited to urban development. The main limitations are the wetness, the slow or very slow permeability, low strength on sites for roads, and the high shrink-swell potential. Flooding is a hazard in areas of the Judice soil, and erosion can be a hazard in areas of the Kaplan soil. Drainage and other water-control systems are needed to remove excess water and control flooding. The very slow or slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained disposal units can be used to properly dispose of sewage. Buildings can be constructed on mounds, above the expected level of flooding. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with material that has a low shrink-swell potential. Properly designing roads helps to offset the limited ability of the soils to support a load. A drainage system is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines, and vegetable gardens. Revegetating disturbed areas on construction sites as soon as possible helps to control erosion.

These soils are poorly suited to recreational development. The main limitations are the wetness and the slow or very slow permeability. Flooding is a hazard in camp areas. A good drainage system is needed in most recreational areas. Flooding can be controlled by constructing levees and diversions.

These soils are well suited to habitat for ducks, geese, quail, doves, deer, squirrels, rabbits, and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, promoting the natural establishment of desirable plants, or selectively harvesting timber so that large dense and mast-producing trees remain.

The Judice soil is in capability subclass IIIw, and the Kaplan soil is in capability subclass IIe. The woodland ordination symbol is 7W in areas of the Judice soil and 6W in areas of the Kaplan soil.

Ka—Kaplan silt loam. This level, somewhat poorly drained soil is on broad, slightly convex ridges on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown silt loam about 4 inches thick. The next layer is dark gray, mottled silt loam. The subsoil to a depth of about 60 inches is silty clay loam. In sequence downward, it is dark gray and mottled, grayish brown and mottled, gray and mottled, and light brownish gray.

Included with this soil in mapping are a few small areas of Crowley, Midland, Morey, and Mowata soils. Crowley soils are in landscape positions similar to those of the Kaplan soil. They have an abrupt textural change between the subsurface layer and the subsoil. Midland, Morey, and Mowata soils are lower on the landscape than the Kaplan soil. Midland soils do not have red mottles in the upper part of the subsoil. Morey soils have a surface layer that is darker than that of the Kaplan soil. Mowata soils have a subsurface layer that extends into the subsoil. Included soils make up about 15 percent of the map unit.

The Kaplan soil has medium fertility. Water runs off the surface at a slow rate and stands in low areas for short periods after heavy rains. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of 1.5 to 2.5 feet during the period December through April. The shrink-swell potential is high.

Most of the acreage is used for cultivated crops or building site development. A small acreage is used as pasture.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Rice and soybeans are the main crops, but corn and small grain also are suitable. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The soil is friable and can be easily kept in good tilth. Traffic pans form easily, but they can be broken up by deep plowing or chiseling. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Crops respond well to additions of complete fertilizer.

This soil is well suited to pasture. The main limitation is the wetness. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, white clover, and winterpea. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Excess surface water can be removed by field ditches and vegetated outlets. Fertilizer is needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. Most areas, however, are used for cropland or homesites and are not likely to be used for commercial timber production. The native vegetation was tall prairie grasses. If this soil is used for commercial timber production, the main concerns are moderate equipment limitations, compaction, and severe plant competition caused by the wetness. The trees suitable for planting are water oak, sweetgum, and green ash. Site preparation helps to control initial plant competition, and hand spraying helps to control subsequent growth. Planting and harvesting only during the drier periods help to prevent rutting and compaction.

This soil is poorly suited to urban development. The main limitations are the wetness, the slow permeability, the high shrink-swell potential, and low strength on sites for roads. Excess water can be removed by shallow ditches and proper grading. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow permeability. Lagoons or self-contained disposal units can be used to properly dispose of sewage. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with material that has a low shrink-swell potential. Mulching, applying fertilizer, and irrigating are needed to establish lawn grasses and other small-seeded plants. Properly designing roads and streets helps to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational development. It is limited mainly by the wetness and the slow permeability. A good drainage system is needed in most recreational areas. The plant cover can be maintained by controlling traffic.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIw. The woodland ordination symbol is 6W.

LF—Lafitte muck. This level, very poorly drained, very fluid, organic soil is in brackish marshes. It is ponded most of the time and flooded frequently. Many areas are intermittently submerged and occur as small to large lakes. Because of poor accessibility, the number of observations made in areas of this soil was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the organic material is very dark grayish brown and black, very fluid muck about 55 inches thick. The mineral underlying material to a depth of about 70 inches is very dark gray, very fluid mucky clay.

Included with this soil in mapping are a few large areas of Clovelly, Delcomb, and Scatlake soils. The included soils are in landscape positions similar to those of the Lafitte soil. Clovelly and Delcomb soils have less than 51 inches of organic material. Scatlake soils are mineral. Included soils make up about 20 percent of the map unit.

The Lafitte soil is ponded with several inches of moderately saline water most of the time. During storms, tidal floodwater from the Gulf of Mexico is as much as 5 feet deep. During periods when the soil is not flooded, the water table is about 1.0 foot above to 0.5 foot below the surface. This soil is saturated throughout. It is slightly saline. The soil has a low load-supporting capacity. The clayey underlying material has a low shrink-swell potential because it is saturated and very fluid. Permeability is moderately rapid in the organic layers and very slow in the clayey layers. The total subsidence potential is high.

The natural vegetation consists mainly of marshhay cordgrass. Other common plants are needlegrass rush, saltmarsh bulrush, Olney bulrush, hairypod cowpea, and seashore saltgrass. Large areas are intermittently submerged and support mainly aquatic vegetation, such as widgeongrass and dwarf spikesedge.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. It provides habitat for waterfowl, American alligators, and furbearers, such as mink, muskrat, and nutria. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the flooding, the salinity, low strength, and the poor accessibility are the main limitations. The soil cannot support the weight of grazing livestock. It can be protected from flooding and drained by pumps, but extreme acidity, salt water from storms, subsidence, and low strength are continuing limitations. Trees suitable for commercial timber production generally do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The flooding, the ponding, and low strength are severe limitations. If the soil is drained and protected from flooding, it can subside. After the soil is drained, the very high shrink-swell potential of the clayey underlying material is a limitation.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

LR—Larose mucky clay. This level, very poorly drained soil is in freshwater marshes. It is ponded and flooded most of the time. Many areas are intermittently submerged and occur as small to large shallow lakes. Areas are irregularly shaped and are several hundred acres in size. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is dark gray, very fluid mucky clay about 6 inches thick. Below this is black, very fluid mucky clay about 24 inches thick. The underlying material to a depth of about 60 inches is dark gray, very fluid clay.

Included with this soil in mapping are a few large areas of Allemands soils and a few small areas of Bancker, Clovelly, and Ged soils. Allemands, Bancker, and Clovelly soils are in landscape positions similar to those of the Larose soil. Allemands and Clovelly soils are organic. Bancker soils are more saline than the Larose soil. Ged soils are in the slightly higher landscape positions. They have a firm, mineral subsoil. Also included are a few small areas of soils that are similar to the Larose soil, except that they are more firm in the lower part. Included soils make up about 20 percent of the map unit.

The Larose soil is ponded with several inches of fresh water most of the time. During storms, tidal floodwater is as much as 2 feet deep. During periods when the soil is not flooded, the water table is about 2.0 feet above to 0.5 foot below the surface. The soil has a low load-supporting capacity. It is saturated and very fluid throughout. This soil has a low shrink-swell potential because it never dries enough to shrink. Permeability is very slow. The total subsidence potential is low.

The natural vegetation consists mainly of bulltongue, cattail, and marshhay cordgrass. Other common plants are alligatorweed, giant cutgrass, rattlebox, California bulrush, primrose, maidencane, and common buttonbush. Large areas are intermittently submerged and support mainly aquatic and floating types of vegetation, such as duckweed, milfoil, pennywort, water hyacinth, waterlilies, and coontail.

Most areas are used as habitat for wetland wildlife or for extensive recreational purposes.

This soil is well suited to habitat for wetland wildlife. It provides roosting and feeding areas for ducks, geese, and many other types of waterfowl. It also provides habitat for American alligators and for furbearers, such as nutria, mink, muskrats, and raccoons. Water-control structures for intensive wildlife management are difficult to construct because of the instability and very fluid nature of the soil material. The small ponds included in areas of this soil produce many freshwater fish for sport and commercial fishing. Hunting waterfowl also is a popular sport in areas of this soil.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the flooding, and low strength are severe limitations. The poor accessibility also is a problem. The soil cannot support the weight of grazing cattle or machinery. Trees suitable for commercial timber production generally do not grow on this soil. Drainage and protection from flooding are possible only if an extensive system of levees is constructed and pumps are installed.

This soil is generally not suited to urban uses. The flooding, the ponding, and low strength are severe limitations. If the soil is protected from flooding and drained, subsidence and low strength on sites for roads are continuing limitations. Also, the clayey underlying material shrinks and swells markedly upon wetting and drying. The soil is poorly suited to use for the construction of levees because it shrinks and cracks considerably when dried.

The capability subclass is VIIw. No woodland ordination symbol is assigned.

Me—Memphis silt loam, 1 to 5 percent slopes. This gently sloping, well drained soil is on side slopes and convex ridgetops in the uplands.

Typically, the surface layer is brown silt loam about 5 inches thick. The next layer is dark brown silt loam about 3 inches thick. The subsoil extends to a depth of about 60 inches. It is dark brown silty clay loam in the upper part and dark brown silt loam in the lower part.

Included with this soil in mapping are a few small areas of Coteau and Frost soils. Coteau soils are on some side slopes. They have grayish mottles in the subsoil. Frost soils are in drainageways and are poorly drained. Included soils make up about 10 percent of the map unit.

The Memphis soil has low fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a moderate rate. The surface layer dries quickly after rains. The shrink-swell potential is low.

Most areas are used for cultivated crops or pasture. A few areas are used for homesites.

This soil is well suited to cultivated crops. It is limited mainly by a moderate hazard of erosion. The low fertility is a minor limitation. Soybeans and sugarcane are the main crops, but corn, cotton, and sweet potatoes also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. In places irregular slopes hinder tillage. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. Leaving crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. The soil should be tilled on the contour or across the slope. Minimum tillage, terraces, diversions, and grassed waterways help to control erosion. Installing drop structures in grassed waterways helps to control gullying. Most crops respond well to applications of fertilizer. Lime is generally needed.

This soil is well suited to pasture. Few major limitations affect this use. The low fertility is a minor limitation, and erosion is a minor hazard. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, and ball clover. Erosion can be controlled by maintaining a good plant cover. Seedbeds should be prepared on the contour or across the slope if possible. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. Few limitations affect this use. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling, which can eliminate unwanted weeds, brush, and trees. Planting trees on the contour helps to control erosion. The trees suitable for planting are cherrybark oak, sweetgum, loblolly pine, and slash pine.

This soil is well suited to urban development. Few limitations affect most urban uses. Low strength is a limitation on sites for roads and streets. Septic tank absorption fields may not function properly during rainy periods because of the moderate permeability. This limitation can be easily overcome, however, by increasing the size of the absorption field. The hazard of erosion is increased if the soil is left exposed during site development. Revegetating disturbed areas on construction sites as soon as possible helps to control erosion. Mulching, applying fertilizer, and irrigating help to establish lawn grasses and other small-seeded plants. Properly designing streets and roads helps to offset the limited ability of the soil to support a load.

This soil is well suited to recreational development. Erosion is a hazard on sites for playgrounds and in bare areas. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining an adequate plant cover. The plant cover can be maintained by applying fertilizer and controlling traffic. Cuts and fills should be seeded or mulched.

This soil is well suited to habitat for doves, quails, rabbits, and other nongame species. Wildlife habitat can be improved by maintaining the existing plant cover or by promoting the natural establishment of desirable plants.

The capability subclass is IIe. The woodland ordination symbol is 12A.

MM—Mermentau clay. This level, poorly drained soil is on low ridges in brackish marshes. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is black clay about 8 inches thick. The subsoil is gray, mottled clay about 13 inches thick. The substratum extends to a depth of about 60 inches. It is grayish brown, mottled fine sandy loam in the upper part; gray, mottled sandy loam in the next part; and gray, mottled clay loam in the lower part. The substratum has marine shells and shell fragments throughout.

Included with this soil in mapping are a few large areas of Bancker, Creole, and Scatlake soils and a few small areas of Cheniere and Hackberry soils. Bancker, Creole, and Scatlake soils are lower on the landscape than the Mermentau soil. They are very fluid or slightly fluid throughout. Cheniere and Hackberry soils are higher on the landscape than the Mermentau soil. Cheniere soils are somewhat excessively drained, and Hackberry soils are somewhat poorly drained. Also included are a few large areas of soils that are similar to the Mermentau soil, except that they are less saline and are in freshwater marshes. Included soils make up about 20 percent of the map unit.

The Mermentau soil is subject to frequent shallow flooding by the highest of the normal tides. It also is subject to occasional deep flooding by storm tides. Tides can be as much as 3 feet above normal elevations when hurricane and tropical storms pass through or near the parish. Effective rooting depth is limited by a seasonal high water table. The water table is within a depth of about 3.5 feet throughout the year. Permeability is very slow. Water runs off the surface at a very slow rate. The soil is slightly saline or moderately saline. The surface layer is very sticky when wet and hard when dry. The shrink-swell potential is high.

The natural vegetation consists mainly of seashore saltgrass, gulf cordgrass, seashore paspalum, marshhay cordgrass, common reed, saltmarsh bulrush, needlegrass rush, and coastal waterhyssop.

Most of the acreage is used as rangeland or wildlife habitat. A small acreage is used for campsites, homesites, or gas and oil fields.

This soil is moderately well suited to rangeland. The major management concerns on marsh rangeland are insects and flooding. Native stands of seashore paspalum, seashore saltgrass, marshhay cordgrass, and gulf cordgrass provide suitable forage for grazing cattle. Grazing management, brush control, protection from wildlife, and proper location of stock water, walkways, and fences are needed.

This soil is not suited to cultivated crops, pasture, or woodland. Wetness, the flooding, and the salinity are the major limitations. Trees suitable for commercial timber production generally do not grow on this soil.

This soil is well suited to habitat for rabbits and deer. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

This soil is poorly suited to urban uses. The wetness, the high shrink-swell potential, the very slow permeability, the salinity, and the flooding are the main limitations. Major flood-control structures and extensive local drainage systems are needed to protect this soil from flooding. Buildings can be constructed on pilings or mounds, above the expected level of flooding. The very slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Sewage lagoons or self-contained disposal units can be used to properly dispose of sewage.

This soil is poorly suited to intensive recreational uses. The wetness, the very slow permeability, and the salinity are the main limitations. Flooding is a hazard. Also, hurricanes are common in areas of this soil.

The capability subclass is VIIw; Brackish Firm Mineral Marsh range site. No woodland ordination symbol is assigned.

Mn—Midland silty clay loam. This level, poorly drained soil is on broad flats and in slightly concave areas on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown silty clay loam about 8 inches thick. It is mottled in the lower part. The subsoil extends to a depth of about 60 inches. It is dark gray, mottled silty clay loam in the upper part and gray, mottled silty clay in the lower part.

Included with this soil in mapping are a few small areas of Judice, Morey, and Mowata soils. The included soils are in landscape positions similar to those of the Midland soil. Judice and Morey soils have a surface layer that is darker than that of the Midland soil. Mowata soils have a subsurface layer that extends into the subsoil. Included soils make up about 15 percent of the map unit.

The Midland soil has medium fertility. Water and air move through this soil at a very slow rate. Water runs slowly or very slowly off the surface. A seasonal high water table is at a depth of about 0.5 foot to 1.5 feet during the period December through April. The soil is subject to rare flooding during unusually wet periods. The surface layer is sticky when wet and hard when dry. It remains wet for long periods after heavy rains. The shrink-swell potential is high.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is moderately well suited to cultivated crops. Rice and soybeans are the main crops, but corn also is suitable. The main limitations are wetness and poor tilth. The medium fertility is a minor limitation. This soil is difficult to keep in good tilth. It can be worked only within a narrow range in moisture content. It becomes cloddy if tilled when it is too wet or too dry. The wetness may delay planting and harvesting. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage and the efficiency of farm equipment. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Crops respond to additions of lime and complete fertilizer.

This soil is well suited to pasture. The main limitation is the wetness. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, ryegrass, Dallisgrass, tall fescue, and white clover. Grazing when the soil is wet results in compaction of the surface layer and damage to the plant community. The wetness limits the choice of plants and the period of grazing. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Excess surface water can be removed by field ditches and vegetated outlets. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. Few areas, however, are likely to be used for commercial timber production. Seedling mortality is moderate because of the wetness. If this soil is used as woodland, the main limitations are severe equipment limitations, rutting and compaction, severe plant competition, and seedling mortality. The trees suitable for planting are green ash, sweetgum, and water oak. Preparing sites and harvesting only during dry periods help to prevent rutting and compaction. Special site preparation, such as bedding and harrowing, or using containerized planting stock can reduce the seedling mortality rate. Site preparation helps to control the initial growth of undesirable understory plants, and hand spraying or cutting helps to control the subsequent growth.

This soil is poorly suited to urban development. The main limitations are the wetness, the very slow permeability, the high shrink-swell potential, and low strength on sites for roads and streets. Flooding is a hazard. A drainage system is needed if roads and building foundations are constructed. Flooding can be controlled by constructing levees and diversions. Properly designing buildings and roads helps to prevent the damage caused by shrinking and swelling. Properly designing roads helps to offset the limited ability of the soil to support a load. The very slow permeability and the high water table increase the possibility that septic tank absorption fields will fail. Lagoons or self-contained disposal units can be used to properly dispose of sewage.

This soil is poorly suited to recreational development. It is limited mainly by the wetness and the very slow permeability. Flooding is a hazard in camp areas. A good drainage system is needed in most recreational areas. Flooding can be controlled by constructing levees and diversions.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 4W.

Mr—Morey silt loam. This level, poorly drained soil is on broad flats on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is black silt loam about 6 inches thick. The subsoil extends to a depth of about 60 inches. In sequence downward, it is black silt loam; dark gray silty clay loam; gray, mottled silty clay loam; light brownish gray, mottled silty clay loam; and light olive brown, mottled silty clay loam.

Included with this soil in mapping are a few small areas of Gueydan, Judice, Kaplan, Midland, and Mowata soils. The included soils have more clay in the subsoil than the Morey soil. Gueydan, Judice, Midland, and Mowata soils are in landscape positions similar to those of the Morey soil. Kaplan soils are slightly higher on the landscape than the Morey soil. Included soils make up about 15 percent of the map unit.

The Morey soil has high fertility. Water and air move through this soil at a slow rate. Water runs off the surface at a slow or very slow rate. A seasonal high water table is at a depth of about 0.5 foot to 3.0 feet during the period December through April. This soil is subject to rare flooding during unusually wet periods. The surface layer remains wet for long periods after heavy rains. An adequate amount of water is available to plants during most years. The shrink-swell potential is high in the subsoil.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is moderately well suited to cultivated crops. The main limitation is wetness. Rice and soybeans are the main crops, but corn also is suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. A tillage pan forms easily if this soil is tilled when wet, but the pan can be broken up by chiseling or subsoiling. Most climatically adapted crops can be grown if artificial drainage is provided. Land grading and smoothing can improve surface drainage and the efficiency of farm equipment. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. Leaving crop residue on or near the surface helps to control runoff and maintain tilth and the content of organic matter. Most crops respond well to additions of fertilizer.

This soil is well suited to pasture. The main limitation is the wetness. The suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, white clover, and winterpea. Grazing when the soil is wet results in compaction of the surface layer and damage to the plant community. Excess surface water can be removed by shallow ditches and vegetated outlets. Proper grazing practices, weed control, and fertilizer are needed for maximum quality of forage.

This soil is moderately well suited to woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. Seedling mortality is severe because of the wetness. If this soil is used for woodland, the main management concerns are severe equipment limitations, severe plant competition, compaction, and seedling mortality. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from December through April. The trees suitable for planting are loblolly pine, slash pine, green ash, or sweetgum. Preparing sites and harvesting only during dry periods help to prevent rutting and compaction. Special site preparation, such as bedding and harrowing, or using containerized planting stock can reduce the seedling mortality rate.

This soil is poorly suited to urban development. The main limitations are the wetness, the slow permeability, the high shrink-swell potential, and low strength on sites for roads. Flooding is a hazard. Drainage and protection from flooding are needed if buildings are constructed. Properly designing roads helps to offset the limited ability of the soil to support a load. Reinforcing building slabs and footings helps to prevent the damage caused by the shrinking and swelling of the subsoil. Buildings can be constructed on mounds, above the expected level of flooding. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow permeability. Lagoons or self-contained disposal units can be used to properly dispose of sewage.

This soil is moderately well suited to most recreational uses. It is poorly suited to camp areas because of the flooding. The main limitations are the wetness and the slow permeability. Constructing shallow ditches or grading and smoothing the surface help to remove excess surface water. Flooding can be controlled by constructing levees and diversions.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 9W.

Mt—Mowata silt loam. This level, poorly drained soil is on broad, slightly concave flats and along drainageways on the Gulf Coast Prairies. Slopes are less than 1 percent.

Typically, the surface layer is dark grayish brown, mottled silt loam about 5 inches thick. The subsurface layer is dark gray silt loam. The subsoil extends to a depth of about 60 inches. In sequence downward, it is dark gray, mottled silty clay loam and silt loam; gray, mottled silty clay; and mottled gray and yellowish brown silty clay loam.

Included with this soil in mapping are a few small areas of Crowley, Frost, and Midland soils. The somewhat poorly drained Crowley soils are on ridges. They have an abrupt textural change between the subsurface layer and the subsoil. Frost and Midland soils are in landscape positions similar to those of the Mowata soil. Frost soils are loamy throughout. Midland soils do not have a subsurface layer that extends into the subsoil. Included soils make up about 10 percent of the map unit.

The Mowata soil has medium fertility. Water runs off the surface at a very slow rate and stands in low areas for short periods after heavy rains. Water and air move through this soil at a very slow rate. A seasonal high water table is within a depth of about 2 feet during the period December through April. This soil is subject to rare flooding by run-in water during unusually wet periods. The shrink-swell potential is high. The surface layer remains wet for long periods after heavy rains.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is moderately well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Rice and soybeans are the main crops, but corn and small grain also are suitable. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. Traffic pans form easily, but they can be broken up by deep plowing or chiseling. Returning all crop residue to the soil and using a cropping system that includes grasses, legumes, or grass-legume mixtures help to maintain fertility and tilth. Crops respond well to additions of lime and fertilizer.

This soil is well suited to pasture. The main limitation is the wetness. The medium fertility is a minor limitation. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, ryegrass, white clover, and wild winterpea. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Excess surface water can be removed by field ditches and vegetated outlets. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is moderately well suited to woodland. Most areas, however, are not likely to be used for commercial timber production. The native vegetation was tall prairie grasses. Seedling mortality is moderate because of the wetness. If this soil is used to produce timber, the main management concerns are severe equipment limitations, compaction, severe plant competition, and seedling mortality. Conventional methods of harvesting timber generally can be used, but their use may be limited during rainy periods, generally from December through April. The trees suitable for planting are loblolly pine, slash pine, and sweetgum. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Preparing sites and harvesting only during the drier periods help to prevent rutting and compaction. Seedling mortality rates can be reduced by special site preparation, such as bedding and harrowing, or by using containerized planting stock.

This soil is poorly suited to urban development. The main limitations are the wetness, the very slow permeability, low strength on sites for roads and streets, and the high shrink-swell potential. A drainage system is needed if roads and building foundations are constructed. Properly designing roads helps to offset the limited ability of the soil to support a load. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the very slow permeability. Lagoons or self-contained disposal units can be used to properly dispose of sewage. The effects of shrinking and swelling can be minimized by using the proper engineering designs and by backfilling with material that has a low shrink-swell potential. Buildings can be constructed on mounds, above the expected level of flooding. A drainage system is needed for most lawn grasses, shade trees, ornamental trees, shrubs, vines and vegetable gardens.

This soil is poorly suited to recreational development. The main limitations are the wetness and the very slow permeability. Flooding is a hazard in camp areas. A good drainage system is needed in most recreational areas. Flooding can be controlled by constructing levees and diversions.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIIw. The woodland ordination symbol is 9W.

Pa—Patoutville silt loam, 0 to 1 percent slopes. This level, somewhat poorly drained soil is on broad, slightly convex ridges in the uplands.

Typically, the surface layer is brown, mottled silt loam about 6 inches thick. The subsurface layer is light brownish gray, mottled silt loam about 5 inches thick. The subsoil to a depth of about 70 inches is silty clay loam. It is dark grayish brown and mottled in the upper part, is grayish brown and mottled in the next part, and has gray and yellowish brown mottles in the lower part.

Included with this soil in mapping are a few small areas of Coteau, Crowley, and Frost soils. Coteau soils are in the slightly higher landscape positions. They have a subsoil that is browner in the upper part than that of the Patoutville soil. Crowley soils are in landscape positions similar to those of the Patoutville soil. They have a loamy and clayey subsoil. Frost soils are in slightly depressional areas and drainageways. They have a subsurface layer that extends into the subsoil. Included soils make up about 15 percent of the map unit.

The Patoutville soil has medium fertility. Water runs off the surface at a slow rate. Water and air move through this soil at a slow rate. A seasonal high water table is at a depth of about 2 to 5 feet during the period December through May. The shrink-swell potential is moderate.

Most of the acreage is used for cultivated crops. A small acreage is used for pasture or homesites.

This soil is well suited to cultivated crops. It is limited mainly by wetness. The medium fertility is a minor limitation. Soybeans are the main crop, but rice, sugarcane, sweet potatoes, corn, and cotton also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. Proper row arrangement, field ditches, and vegetated outlets are needed to remove excess surface water. Traffic pans develop easily, but they can be broken up by deep plowing or chiseling. Returning crop residue to the soil and minimizing tillage help to prevent crusting of the surface layer and compaction. Land grading and smoothing can improve surface drainage, allow more uniform applications of irrigation water, and improve the efficiency of farm equipment. Proper irrigation systems are needed for the production of rice. Installing pipe or other drop structures in drainage ditches helps to control the water level in rice fields and prevent the excessive erosion of ditches. The content of organic matter can be maintained by using all crop residue, plowing under cover crops, and selecting a suitable cropping system. Crops respond well to lime and fertilizer.

This soil is well suited to pasture. Few major limitations affect this use. The wetness and the medium fertility are minor limitations. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, white clover, vetch, and ryegrass. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Periodic mowing and clipping helps to maintain uniform growth, discourages selective grazing, and reduces clumpy growth. Fertilizer and lime are needed for the optimum growth of grasses and legumes.

This soil is well suited to woodland. Most areas, however, are used as cropland and are not likely to be used for commercial wood production. The native vegetation was tall prairie grasses. If this soil is used as woodland, the main management concerns are moderate equipment limitations, compaction, and severe plant competition caused by the wetness. The trees suitable for planting are loblolly pine and slash pine. Carefully managing reforestation after harvesting helps to control competition from undesirable understory plants. Harvesting and preparing sites during the drier periods help to minimize compaction.

This soil is moderately well suited to urban development. The wetness, the slow permeability, low strength on sites for roads and streets, and the moderate shrink-swell potential are the main limitations. A drainage system is needed if roads and building foundations are constructed. Properly designing roads helps to offset the limited ability of the soil to support a load. Excess water can be removed by shallow ditches and proper grading. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow permeability. The effects of the permeability and the wetness can be minimized by increasing the size of the absorption field. Self-contained disposal units or lagoons can be used to properly dispose of sewage. Properly designing building foundations and footings helps to prevent the damage caused by shrinking and swelling. Mulching, applying fertilizer, and irrigating help to establish lawn grasses and other small-seeded plants.

This soil is moderately well suited to recreational development. It is limited mainly by the wetness and the slow permeability. Good drainage is needed in intensively used areas, such as playgrounds and camp areas. The plant cover can be maintained by applying fertilizer and controlling traffic.

This soil is well suited to habitat for ducks, geese, quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIw. The woodland ordination symbol is 10W.

Pb—Patoutville silt loam, 1 to 3 percent slopes. This very gently sloping, somewhat poorly drained soil is on short side slopes in the uplands.

Typically, the surface layer is brown silt loam about 6 inches thick. The subsurface layer is grayish brown silt loam about 3 inches thick. The subsoil to a depth of about 60 inches is mottled silty clay loam. It is grayish brown in the upper part and light brownish gray in the lower part.

Included with this soil in mapping are a few small areas of Crowley and Frost soils. Crowley soils are in landscape positions similar to those of the Patoutville soil. They have a loamy and clayey subsoil. Frost soils are in drainageways. They have a subsurface layer that extends into the subsoil. Included soils make up about 10 percent of the map unit.

The Patoutville soil has medium fertility. Water runs off the surface at a medium rate. Water and air move through this soil at a slow rate. A seasonal high water table is a depth of about 2 to 5 feet during the period December through May. The shrink-swell potential is moderate.

Most areas are used for cultivated crops. A few areas are used for pasture or homesites.

This soil is well suited to cultivated crops. It is limited mainly by the slope and a moderate hazard of erosion. Wetness and the medium fertility are minor limitations. Soybeans are the main crop, but corn, cotton, sugarcane, and sweet potatoes also are suitable. The soil is friable and can be easily kept in good tilth. It can be worked throughout a wide range in moisture content. The soil should be tilled on the contour or across the slope. Minimizing tillage for seedbed preparation and weed control helps to control runoff and erosion. Returning crop residue to the soil and minimizing tillage help to prevent crusting of the surface layer and compaction. Most crops respond well to applications of fertilizer. Lime is generally needed.

This soil is well suited to pasture. Few major limitations affect this use. The medium fertility, the wetness, and the slope are minor limitations. The main suitable pasture plants are common bermudagrass, improved bermudagrass, bahiagrass, white clover, vetch, and ryegrass. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition. Fertilizer and lime are needed for the optimum growth of grasses and legumes. Preparing seedbeds on the contour or across the slope helps to control runoff and erosion.

This soil is well suited to woodland. The trees suitable for planting are loblolly pine and slash pine. If this soil is used as woodland, the main management concerns are moderate equipment limitations, compaction, and severe plant competition caused by the wetness. Competing vegetation can be controlled by proper site preparation and by spraying, cutting, or girdling, which can eliminate unwanted weeds, brush, and trees. Harvesting and preparing sites only during the drier periods help to prevent compaction.

This soil is moderately well suited to urban development. It is limited mainly by the wetness, the slow permeability, low strength on sites for roads, and the moderate shrink-swell potential. The hazard of erosion is increased if the soil is left exposed during site development. Preserving the existing plant cover during construction helps to control erosion. The plant cover can be established or maintained by applying fertilizer, seeding, mulching, and shaping the slopes. Septic tank absorption fields do not function properly during rainy periods because of the wetness and the slow permeability. A self-contained disposal unit can be used to properly dispose of sewage. Properly designing buildings helps to prevent the damage caused by shrinking and swelling. Properly designing roads helps to offset the limited ability of the soil to support a load.

This soil is moderately well suited to recreational development. The wetness, the slow permeability, and the slope are the main limitations. Erosion and sedimentation can be controlled and the beauty of the area enhanced by maintaining an adequate plant cover. The plant cover can be maintained by applying fertilizer and controlling traffic. A good drainage system is needed in intensively used areas, such as playgrounds and camp areas.

This soil is well suited to habitat for quail, doves, and rabbits and numerous other small furbearers. Wildlife habitat can be improved by planting the appropriate vegetation, maintaining the existing plant cover, or promoting the natural establishment of desirable plants.

The capability subclass is IIe. The woodland ordination symbol is 10W.

SC—Scatlake mucky clay. This level, very poorly drained, very fluid, mineral soil is in saline marshes. It is ponded most of the time and flooded frequently. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soil. Slopes are less than 1 percent.

Typically, the surface layer is very dark gray, very fluid mucky clay about 8 inches thick. The underlying layer to a depth of about 80 inches is dark gray and gray, very fluid clay.

Included with this soil in mapping are a few small to large areas of Bancker, Clovelly, and Creole soils. Also included are many small ponds and tidal channels. Bancker and Clovelly soils are in brackish marshes. They are less saline than the Scatlake soil. Clovelly soils have an organic surface layer that is thicker than that of the Scatlake soil. Creole soils are slightly higher on the landscape than the Scatlake soil and are less fluid in the upper part. Included areas make up about 20 percent of the map unit.

The Scatlake soil is ponded with several inches of water most of the time. During storms, tidal floodwater from the Gulf of Mexico is as much as 10 feet deep. During periods when this soil is not flooded, the water table is about 1.0 foot above 0.5 foot below the surface. The soil is moderately saline throughout. It has a low load-supporting capacity and poor trafficability. The shrink-swell potential is low because the soil never dries enough to shrink. Permeability is very slow. The total subsidence potential is low.

The natural vegetation consists mainly of needlegrass rush, smooth cordgrass, marshhay cordgrass, bushy seaoxeye, seashore saltgrass, and saltwort.

Most of the acreage is used as habitat for wetland wildlife or for extensive recreational purposes. A small acreage is used for oil and gas fields.

This soil is well suited to habitat for wetland wildlife. When flooded, it provides roosting areas and a fair supply of food for ducks, geese, and many other types of waterfowl. It also provides a good supply of food for muskrats. The soil is part of an estuarine complex that supports marine life in the Gulf of Mexico. It is an important nursery for estuary-dependent fish and crustaceans, such as menhaden, croaker, bay anchovy, shrimp, and blue crab. These fish and estuarine larval forms are the basis for a large fishing industry. Many natural and manmade ponds and waterways provide access for fishing, shrimping, hunting, and other outdoor activities.

This soil is not suited to cultivated crops, pasture, or woodland. The ponding, the salinity, low strength, and the poor accessibility are the main limitations. Flooding is a hazard. Because the soil is soft and boggy, it cannot support the weight of grazing cattle or farm machinery. It can be drained and protected from flooding, but extreme acidity and subsidence are continuing limitations. Trees suitable for commercial timber production do not grow on this soil.

This soil is not suited to urban or intensive recreational uses. The ponding, the salinity, and low strength are the main limitations. Flooding is a hazard. Also, hurricanes are common in areas of this soil. If this soil is drained and protected from flooding, it shrinks, cracks, and subsides to elevations below sea level.

The capability subclass is VIIIw. No woodland ordination symbol is assigned.

UD—Udifluvents, 1 to 20 percent slopes. These sandy to clayey soils are in areas that were hydraulically excavated during the construction and maintenance of navigable waterways. The soils are on low to high spoil banks and are about 1 to 15 feet higher than the surrounding soils. They have no identifiable soil layers. They are firm throughout. The texture, internal drainage, and the slope vary considerably, and the surface is uneven. Areas are irregularly shaped or long and narrow and range from 20 to several hundred acres in size. Because of poor accessibility, the number of observations made in these areas was fewer than in most other areas of the parish. The detail in mapping, however, is adequate for the expected use of the soils.

Included with these soils in mapping are a few large areas of Aquents and a few small areas of Allemands, Bancker, Ged, Delcomb, Lafitte, and Larose soils. These included soils are lower on the landscape than the Udifluvents. Aquents and Lafitte, Delcomb, and Bancker soils are more saline than the Udifluvents. Allemands and Larose soils are very fluid throughout. Ged soils have a very fluid surface layer. Also included are a few small areas of Udifluvents that are slightly saline. Included soils make up about 20 percent of the map unit.

The Udifluvents have medium fertility. Water and air move through these soils at a very slow to moderate rate. Water runs off the surface at a slow to rapid rate, depending on the slope. Depth to the water table varies.

The natural vegetation consists mainly of rattlebox, ragweed, eastern baccharis, and common bermudagrass. Many areas along the Intracoastal Waterway are wooded. The major trees are sugarberry, black willow, and Chinese tallow.

Most of the acreage is used as wildlife habitat. A small acreage is used as pasture, as rangeland, or for urban and industrial development.

These soils provide habitat for deer, rabbits, and other furbearers, such as muskrat, nutria, raccoons, and mink.

These soils are poorly suited to urban and recreational development. The main limitations are the uneven surface, the slope, wetness, the variability of the soil material, and the poor accessibility.

These soils are generally not suited to cultivated crops. The uneven surface, the slope, and the poor accessibility are the main limitations.

These soils are poorly suited to rangeland, pasture, and woodland. The uneven surface, the slope, the variability of the soil material, and the poor accessibility are the main limitations. The suitable pasture plants are common bermudagrass and bahiagrass. The trees suitable for planting are green ash, eastern cottonwood, and American sycamore. Good grazing management and weed and brush control are needed in the areas of rangeland.

The capability subclass is VIe. No woodland ordination symbol is assigned.

Prime Farmland

In this section, prime farmland is defined and the soils in Vermilion Parish that are considered prime farmland are discussed.

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. The moisture supply must be adequate, and the growing season must be sufficiently long. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources. Farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They are used for food or fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in National forests, National parks, military reservations, and State parks.

Prime farmland soils usually receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable. The acidity or alkalinity level of the soils is acceptable. The soils have few or no rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods and are not frequently flooded during the growing season. The slope ranges mainly from 0 to 5 percent.

About 363,000 acres in the survey area, or about 46 percent of the total land area, meets the soil requirements for prime farmland. This land is mainly in the northern half of the parish. About 200,000 acres of the prime farmland is used for cultivated crops, mainly rice, soybeans, sugarcane, wheat, and grain sorghum. Because Vermilion Parish is primarily rural and has only two large population centers, it has not lost a large percentage of its prime farmland to industrial or urban uses.

The map units in Vermilion Parish that are considered prime farmland are listed in table 6. This list does not constitute a recommendation for a particular land use. The location of each map unit is shown on the detailed soil maps at the back of this publication. The extent of each unit is given in table 5. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Some soils that have a seasonal high water table qualify as prime farmland only in areas where this limitation has been overcome by drainage measures. The need for these measures is indicated in parentheses after the map unit name in table 6. Onsite evaluation is necessary to determine whether or not this limitation has been overcome by corrective measures.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis for predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and woodland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and for wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern that is in harmony with nature.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

In 1987, about 298,000 acres in Vermilion Parish was used for crops or pasture. Of this acreage, about 200,000 acres was used for crops, mainly rice and soybeans, and 98,000 acres was used as pasture.

The suitability of soils for crops and pasture and the management needed in areas of cropland or pasture are based on soil characteristics, such as the fertility level, erodibility, content of organic matter, availability of water to plants, drainage, and susceptibility to flooding. Each farm has a unique soil pattern; therefore, each has unique management problems. Some principles of farm management apply only to specific soils and certain crops. This section describes the general principles of management that can be applied to the soils in Vermilion Parish.

Pasture and Hayland. Perennial grasses or legumes, or mixtures of both, are grown in the parish for pasture and hay. The mixtures generally consist of either a summer or a winter perennial grass and a suitable legume. Also, many farmers seed small grain or ryegrass in the fall for winter and spring forage. Excess grass in summer is harvested as hay for use in winter.

Common bermudagrass, improved bermudagrass, and Pensacola bahiagrass are the most commonly grown summer perennials. Improved bermudagrass and Pensacola bahiagrass produce good-quality forage. Tall fescue, the chief winter perennial grass, grows well only on soils that have a favorable moisture content. All of the grasses respond well to applications of fertilizer, particularly nitrogen.

White clover is the most commonly grown legume. It responds well to applications of lime, particularly in areas of acid soils.

Proper grazing management, brush and weed control, applications of fertilizer and lime, and pasture renovation are essential for high-quality forage, stand survival, and erosion control.

Applications of Fertilizer and Lime. Most of the soils in Vermilion Parish that are used for crops are low or medium in content of organic matter and available nitrogen. The only exceptions are Gueydan, Jeanerette, Judice, and Morey soils, which are high in content of organic matter and available nitrogen. If used for crops or pasture, most of the soils generally require applications of lime and fertilizer. The amount of fertilizer needed depends on the kind of crop to be grown, past cropping history, the desired level of yields, and the kind of soil. The amount should be based on the results of soil tests. Information about collecting and testing soil samples can be obtained from the Cooperative Extension Service.

Organic matter is an important source of nitrogen for crop growth. Also, it increases the rate of water intake, minimizes surface crusting, and improves tilth. Most of the soils in Vermilion Parish that are used for crops are low or medium in organic matter content. The content can be maintained by growing crops that have an extensive root system and an abundance of foliage, by leaving plant residue on the surface, by growing perennial grasses and legumes in rotation with other crops, and by adding barnyard manure. In Vermilion Parish, residue from rice straw helps to maintain the content of organic matter.

Tillage. Soils should be tilled only for seedbed preparation and weed control. Excessive tillage destroys soil structure. The clayey soils in the parish become cloddy if they are cultivated when too wet or too dry. A compacted layer, generally known as a traffic pan or plowpan, commonly forms directly below the plow layer in loamy soils. Where rice is grown in loamy soils, farmers intentionally create a plowpan to keep ponded irrigation water from penetrating the surface. For crops other than rice, however, a plowpan is undesirable because it limits the rooting depth and the amount of moisture available to crops. The formation of a plowpan can be prevented by plowing when the soil is dry or by varying the depth of plowing. If a compacted layer does form or has been intentionally created, it can be broken up by subsoiling or chiseling. Tillage implements that stir the surface and leave crop residue in place protect the soil from beating rains and thus help to control erosion and runoff. The crop residue increases the rate of water infiltration, minimizes surface crusting, and helps to ensure good seed germination.

Drainage. On most of the soils in Vermilion Parish, a surface drainage system is needed to improve the suitability for crops, such as soybeans. The soils in high landscape positions on the Gulf Coast Prairies and those on uplands are drained by a gravity system consisting of row drains and field drains. The soils in low landscape positions are drained by a gravity system consisting of a series of mains, or principal ditches, and laterals, or smaller drains that branch out from the mains. The success of the system depends on the availability of adequate outlets. Drainage also can be improved by land grading, water leveling, or precisely leveling the fields to a uniform grade. Land grading improves surface drainage, eliminates cross ditches, and results in larger and more uniformly shaped fields that are better suited to the use of modern multirow farm machinery. Deep cutting of soils that have unfavorable subsoil characteristics, however, should be avoided.

Water for Plant Growth. The available water capacity of the soils in the parish ranges from low to very high. In many years, however, a sufficient amount of water is not available at the critical time for optimum plant growth unless irrigation water is provided. The soils receive large amounts of rainfall in winter and spring and generally receive sufficient amounts of rainfall in summer and autumn of most years. During dry periods in summer and autumn, however, plants on most soils do not have water.

Cropping System. A good cropping system includes a legume, which provides nitrogen; a crop that requires cultivation, which aids in weed control; a deep-rooted crop, which uses the plant nutrients in the substratum and helps to maintain the permeability of the substratum; and a close-growing crop, which helps to maintain the content of organic matter. The sequence of crops should keep the soil covered as much of the year as possible.

Various cropping systems are used in Vermilion Parish, depending on the main crop that is grown. Rice is commonly rotated with soybeans or pasture. Grass or legume cover crops are commonly grown during fall and winter.

Control of Erosion. Erosion generally is not a serious problem on most of the soils in Vermilion Parish, mainly because the topography generally is level or nearly level. Nevertheless, sheet and gully erosion can be moderately severe in fallow-plowed fields, in newly constructed drainage ditches, and on ridges and mounds in undulating areas. Some gullies tend to form at overfalls into drainage ditches. New drainage ditches should be seeded immediately after construction.

Erosion is a hazard on some of the sloping soils that are left without plant cover for extended periods. If the surface layer is lost through erosion, most of the available plant nutrients and most of the organic matter also are lost. Erosion also results in the sedimentation of drainage systems and the pollution of streams by sediments, nutrients, and pesticides.

Cropping systems that keep a plant cover on the soil for extended periods reduce the hazard of erosion. Growing cover crops of legumes or grasses helps to control erosion, increases the content of organic matter and nitrogen in the soils, and improves tilth. Establishing diversions and grassed waterways, minimizing tillage, farming on the contour, and using cropping systems in which grasses or close-growing crops are rotated with row crops also help to control erosion. Pipe structures that drop water to different levels in drainageways can help to prevent gullying.

Additional information about erosion control, cropping systems, and drainage measures can be obtained from the local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Louisiana Agricultural Experiment Station.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 7. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

For yields of irrigated crops, it is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 7 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for use as cropland. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by Roman numerals I through VIII. The numerals indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class I soils have few limitations that restrict their use.

Class II soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices.

Class III soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both.

Class IV soils have very severe limitations that reduce the choice of plants or that require very careful management, or both.

Class V soils are not likely to erode, but they have other limitations, impractical to remove, that limit their use.

Class VI soils have severe limitations that make them generally unsuitable for cultivation.

Class VII soils have very severe limitations that make them unsuitable for cultivation.

Class VIII soils and miscellaneous areas have limitations that nearly preclude their use for commercial crop production.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, IIe. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class I because the soils of this class have few limitations. The soils in class V are subject to little or no erosion, but they have other limitations that restrict their use to pasture, rangeland, woodland, wildlife habitat, or recreation. Class V contains only the subclasses indicated by *w, s,* or *c.*

The capability classification of each map unit is given in the section "Detailed Soil Map Units" and in the yields table.

Rangeland

Jack Cutshall, range conservationist, helped prepare this section.

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management is based on the relationship of the soils, vegetation, and water.

About 30,000 acres in Vermilion Parish is rangeland. The rangeland is entirely in wetlands, mainly in areas of Creole and Mermentau soils in brackish marshes. A small acreage of rangeland is in areas of Ged and Gueydan soils in freshwater marshes and Hackberry soils on cheniers. The hazards that affect grazing the rangeland in marshes require unique management. These hazards include insects, disease, unusually deep inundation from heavy rainfall or storm tides, a scarcity of shelter, and unstable soil conditions in areas where cattle can become bogged down *(24).*

Insects, especially mosquitoes, can be a serious hazard during summer months, particularly in areas of brackish marshes. Cattle can lose weight and even die during severe infestations. This hazard can be reduced by grazing mainly in winter and in other periods when the number of infestations is low.

High water levels during periods of heavy rainfall or storm tides force cattle to concentrate on higher ground, such as spoil banks and cattle walkways. Cattle lose weight under these conditions and are more susceptible to communicable diseases.

Unless shelter is provided, cold north winds in winter and high temperatures in summer can be detrimental to livestock.

Although Creole, Ged, Gueydan, Hackberry, and Mermentau soils are generally firm enough to support the weight of grazing livestock, the livestock can become bogged down in areas of less stable soils that are included with these soils in mapping. Also, prolonged periods of high water can increase the extent of soils that are not firm enough to support livestock. Where fences are not properly located or are not used, cattle can stray into surrounding areas of less stable soils.

The measures that can help to overcome the hazards that affect grazing the rangeland in the marshes and allow optimum use of this rangeland are described in the following paragraphs.

Cattle walkways.—A more uniform distribution of grazing can be achieved by constructing cattle walkways, which are earthen levees constructed in areas of marsh to improve accessibility. The walkways serve as trails, bedding and calving areas, and areas where calves can rest while their mothers graze; provide the rancher better access to cattle during any season of the year; provide an emergency refuge for cattle during periods of high water caused by heavy rains or storm tides; and provide some relief for the cattle from mosquitoes.

Borrow pits from which earth is removed to build the walkways are staggered from side to side along the levee at intervals of several hundred feet. This arrangement permits cattle to move off the walkways on either side. The staggered pits also keep water from flowing off the range. Where the walkways are built along a range boundary, the earth can be taken from the boundary side of the levee. Plugs of earth left in the pits at various intervals help to control the flow of water. Walkway pits along range boundaries are effective in controlling marsh fires. They serve as resting and feeding areas for waterfowl and as den sites for furbearers.

Bridges or culverts should be installed where the walkways cross natural drainageways. Staggering the pits along the walkways, leaving plugs in boundary pits, and installing bridges or culverts help to maintain the natural water level in the marshes. Properly constructed walkways do not alter the movement of water in the marshes.

Permits for construction must be obtained from the U.S. Army Corps of Engineers before walkways are built in areas of marsh rangeland.

Fencing.—Installing fences helps to distribute grazing and prevent cattle from wandering into boggy areas. A four-strand barbed-wire fence is generally used. Posts should be treated with preservatives, and the fences should be protected from fire. Fire damages the galvanized coating on wire fences and thus allows the wire to rust. Fences should be located so that they separate range sites.

Livestock watering facilities.—Water for livestock is needed on many range sites because the water in bayous, ponds, and pits can become too salty in summer for cattle to drink. Fresh water from wells is the most dependable source of water for livestock. Carefully spacing the watering facilities along walkways helps to distribute grazing.

Controlled burning.—Controlled burning is used widely in marshes. Stockmen and trappers burn off the dense cover of mature marsh vegetation so that new, succulent growth for cattle and wildlife is stimulated and the availability of forage is increased. The natural vegetation can be severely damaged, however, during periods of drought, when the fire can reach the crowns and roots of the plants. The marshes should be burned every other year and at a time when the surface is covered by water. A uniform distribution of grazing and the careful location of walkways, pits, and canals help to control unplanned or accidental fires.

Supplemental feeding.—Supplemental feeding or access to improved pastures is needed on most of the rangeland in marshes to provide an adequate supply of forage throughout the year. Maidencane, a major forage plant in the fresh firm mineral marshes, produces only a small amount of green forage during cold weather. The vegetation remaining from the previous growing season weathers rapidly and quickly becomes unsatisfactory as forage. Unless the weather warms and allows new growth of vegetation, supplemental feed must be provided to cattle. Providing the supplemental feed in a timely manner helps to prevent weight loss in cattle.

If suitable supplemental feed is not provided in a timely manner, cattle can develop rickets, a disease caused by a calcium-phosphorous imbalance or deficiency. Providing supplements of steamed bonemeal or oyster shell flour helps to prevent this disease. Calcium and phosphorus minerals should generally be available on a free choice basis throughout the year.

Where giant cutgrass (southern wildrice) and common reed make up a large percentage of the fresh marsh vegetation, the forage quality remains high even during winter.

In areas of brackish firm mineral marshes, rangeland in good or excellent condition generally provides good grazing throughout the year (even winter), except during prolonged periods of drought, severe storms, or long periods of below-freezing temperatures.

During severe weather, protein supplements and roughage should be provided to cattle. Some protein supplements should also be available to cattle grazing on mature vegetation. The supplements generally are not needed in accessible areas that have been control burned.

Insect control.—When insects, especially mosquitoes, become intolerable during the summer, cattle must be removed from the brackish firm mineral marshes. The rangeland in these marshes should be grazed during the period mid-October to mid-April. Most summer grazing should occur on the rangeland in fresh firm mineral marshes or on improved pastures at the higher elevations.

Some ranchers build smokes for cattle when mosquito outbreaks occur. The smoke repels the mosquitoes and provides temporary relief to the cattle. Mosquito-control districts have been organized in some areas. In these areas insecticides are used to control mosquitoes.

Brush control.—Aerial spraying of various mixtures of herbicides can control rattlebox and hemp seebania, which are weedy legumes. Properly handling and applying herbicides help to prevent injury to humans, domestic animals, desirable plants, and fish and other wildlife and prevent the contamination of water supplies. Conventional and shredding types of mowers can be used to control annual weeds, small brush, and coarse grasses. Palmetto can be effectively controlled by applying 2 tablespoonfuls of diesel fuel to the center of the plant.

Water control.—Salt water from the Gulf of Mexico periodically intrudes into the marshes in the parish through rivers, bayous, and drainage or transportation canals. The vegetation on the rangeland in brackish firm mineral marshes can be severely damaged by water that has high concentrations of salt. During periods of drought, when the amount of fresh water moving to the gulf is reduced, salt water can move landward in the waterways. Heavy south winds can push the salt water inland for considerable distances, allowing it to spread over the rangeland in marshes adjacent to the waterways. Where salt concentrations become high, vegetation is damaged and the habitat for various forms of aquatic wildlife may be destroyed.

The soils and vegetation in areas of rangeland in brackish firm mineral marshes are generally damaged less by short-term inundation of sea water than the soils and vegetation in areas of rangeland in fresh firm mineral marshes and fresh sandy cheniers. Long-term intrusions of sea water, however, can destroy the vegetation in brackish firm mineral marshes. Clayey soils, which are dry before they are flooded, absorb large amounts of salt. The accumulations of salt kill the plants that are less tolerant to salt and cause fine textured mineral and organic soils to become unstable. As a result, these accumulations of salt can reduce the productivity of the range and cause the soils to become unstable and hazardous to livestock. Gates, weirs, and levee systems are needed in some areas of marshes to protect the rangeland against intrusions of salt water.

The rangeland in Vermilion Parish is assigned to one of three range sites—brackish firm mineral marsh, fresh firm mineral marsh, and fresh sandy cheniers. A *range site* is a distinctive kind of rangeland that produces a characteristic climax plant community that differs from climax plant communities on other range sites in kind, amount, or proportion of range plants. The relationship between soils and vegetation was ascertained during this survey; thus, range sites generally can be determined directly from the soil map. Soil properties that affect moisture supply and plant nutrients have the greatest influence on the productivity of range plants. Soil reaction, salt content, flooding, ponding, and a seasonal high water table are also important. The main forage plants on each of the range sites in the parish are specified in the following paragraphs. The range site is given at the end of the map unit description under the heading "Detailed Soil Map Units" for those soils that are used for rangeland.

Brackish Firm Mineral Marsh.—The main forage plants on this range site are marshhay cordgrass, big cordgrass, gulf cordgrass, common reed, seashore saltgrass, and seashore paspalum. Longtom is an example of another productive forage plant on this site.

Fresh Firm Mineral Marsh.—The main forage plants on this range site are maidencane, giant cutgrass (southern wildrice), common reed, California bulrush, alligatorweed, switchgrass, bulltongue, eastern gamagrass, savannah panicum, and longtom.

Fresh Sandy Cheniers.—The main forage plants on this range site are common bermudagrass, common carpetgrass, and rattail smutgrass.

A complete list of plants growing in brackish, freshwater, and saline marshes is given in table 8.

Range management requires a knowledge of the kinds of soil and of the plant community. It also requires an evaluation of the present range condition. Range condition is determined by comparing the present plant community with the climax plant community (natural potential plant community) on a particular range site. The more closely the existing community resembles the climax community, the better the range condition. Range condition is a generalized rating relative to the plant community.

The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the climax plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, a range condition somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

Woodland Management and Productivity

Carl V. Thompson, Jr., forester, Natural Resources Conservation Service, helped prepare this section.

Vermilion Parish has no commercial forest land *(22)*. The native vegetation was mainly tall prairie grasses and wetland and aquatic plants rather than trees. Scattered and thin stands of hardwoods and shrubs grow on the flood plains of some streams and on the cheniers, or low ridges, along the coast of the Gulf of Mexico. These trees are generally not harvested for timber or other uses, but they provide shade for livestock and wildlife and contribute to the esthetic value of the land.

Many of the soils in the uplands and on the Gulf Coast Prairies are suited to the trees grown for commercial uses or other purposes. Their potential for timber production generally is high. Wetness and compaction are the main limitations. The soils in the marshes generally are not suited to trees.

Trees can be planted to screen distracting views of dumps and other unsightly areas, muffle the sound of traffic, reduce the velocity of winds, lend beauty to the landscape, and produce fruits and nuts for people and wildlife. A few windbreaks have been established on the soils in the uplands and on the Gulf Coast Prairies to reduce the velocity of winds and the hazard of wind erosion. Windbreaks are effective in controlling wind erosion during periods when cultivated fields are bare. Several rows of low- and high-growing broad-leaved and needle-leaved trees and shrubs provide the most protection. To ensure survival of windbreaks and environmental plantings, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service, the local office of the

Cooperative Extension Service, the Louisiana Office of Forestry, or from a commercial nursery.

Soils vary in their ability to produce trees. Available water capacity and depth of the root zone have major effects on tree growth. Fertility and texture also influence tree growth.

This soil survey can be used by woodland managers planning ways to establish trees for timber production. Some soils respond better to applications of fertilizer, and some require special reforestation efforts. In the section "Detailed Soil Map Units," the description of each map unit in the survey area suitable for timber production includes information about productivity, limitations in harvesting timber, and management concerns in producing timber. Table 9 summarizes this forestry information and rates the soils for a number of factors to be considered in management. *Slight, moderate,* and *severe* are used to indicate the degree of the major soil limitations to be considered in forest management.

Table 9 lists the *ordination symbol* for each soil. The first part of the ordination symbol, a number, indicates the potential productivity of a soil for the indicator species in cubic meters per hectare. The larger the number, the greater the potential productivity. Potential productivity is based on the site index and the point where mean annual increment is the greatest.

The second part of the ordination symbol, a letter, indicates the major kind of soil limitation affecting use and management. The letter *R* indicates a soil that has a significant limitation because of steepness of slope. The letter *X* indicates that a soil has restrictions because of stones or rocks on the surface. The letter *W* indicates a soil in which excessive water, either seasonal or year-round, causes a significant limitation. The letter *T* indicates a soil that has, within the root zone, excessive alkalinity or acidity, sodium salts, or other toxic substances that limit the development of desirable trees. The letter *D* indicates a soil that has a limitation because of a restricted rooting depth, such as a shallow soil that is underlain by hard bedrock, a hardpan, or other layers that restrict roots. The letter *C* indicates a soil that has a limitation because of the kind or amount of clay in the upper part of the profile. The letter *S* indicates a dry, sandy soil. The letter *F* indicates a soil that has a large amount of coarse fragments. The letter *A* indicates a soil having no significant limitations that affect forest use and management. If a soil has more than one limitation, the priority is as follows: R, X, W, T, D, C, S, and F.

Ratings of the *erosion hazard* indicate the probability that damage may occur if site preparation or harvesting activities expose the soil. The risk is *slight* if no particular preventive measures are needed under ordinary conditions; *moderate* if erosion-control measures are needed for particular silvicultural activities; and *severe* if special precautions are needed to control erosion for most silvicultural activities. Ratings of moderate or severe indicate the need for construction of higher standard roads, additional maintenance of roads, additional care in planning harvesting and reforestation activities, or the use of special equipment.

Ratings of *equipment limitation* indicate limits on the use of forest management equipment, year-round or seasonal, because of such soil characteristics as slope, wetness, stoniness, and susceptibility of the surface layer to compaction. As slope gradient and length increase, it becomes more difficult to use wheeled equipment. On the steeper slopes, tracked equipment is needed. On the steepest slopes, even tracked equipment cannot be operated and more sophisticated systems are needed. The rating is *slight* if equipment use is restricted by wetness for less than 2 months and if special equipment is not needed. The rating is *moderate* if slopes are so steep that wheeled equipment cannot be operated safely across the slope, if wetness restricts equipment use from 2 to 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. The rating is *severe* if slopes are so steep that tracked equipment cannot be operated safely across the slope, if wetness restricts equipment use for more than 6 months per year, if stoniness restricts the use of ground-based equipment, or if special equipment is needed to prevent or minimize compaction. Ratings of moderate or severe indicate a need to choose the best suited equipment and to carefully plan the timing of harvesting and other management activities.

Ratings of *seedling mortality* refer to the probability of the death of naturally occurring or properly planted seedlings of good stock in periods of normal rainfall, as influenced by kinds of soil or topographic features. Seedling mortality is caused primarily by too much water or too little water. The factors used in rating a soil for seedling mortality are texture of the surface layer, depth to a seasonal high water table and the length of the period when the water table is high, rock fragments in the surface layer, rooting depth, and the aspect of the slope. The mortality rate generally is highest on soils that have a sandy or clayey surface layer. The risk is *slight* if, after site preparation, expected mortality is less than 25 percent; *moderate* if expected mortality is between 25 and 50 percent; and *severe* if expected mortality exceeds 50 percent. Ratings of moderate or severe indicate that it may be necessary to use containerized or larger than usual planting stock or to make special site preparations, such as bedding, furrowing, installing a surface drainage system, and providing artificial shade for seedlings. Reinforcement planting is often needed if the risk is moderate or severe.

Ratings of *plant competition* indicate the likelihood of the growth or invasion of undesirable plants. Plant competition is more severe on the more productive soils, on poorly drained soils, and on soils having a restricted root zone that holds moisture. The risk is *slight* if competition from undesirable plants hinders adequate natural or artificial reforestation but does not necessitate intensive site preparation and maintenance. The risk is *moderate* if competition from undesirable plants hinders natural or artificial reforestation to the extent that intensive site preparation and maintenance are needed. The risk is *severe* if competition from undesirable plants prevents adequate natural or artificial reforestation unless the site is intensively prepared and maintained. A moderate or severe rating indicates the need for site preparation to ensure the development of an adequately stocked stand. Managers must plan site preparation measures to ensure reforestation without delays.

The *potential productivity* of *common trees* on a soil is expressed as a *site index*. Common trees are listed in the order of their observed general occurrence. Generally, only two or three tree species dominate. The first tree listed for each soil is the indicator species for that soil. An indicator species is a tree that is common in the area and that is generally the most productive on a given soil.

The *site index* is determined by taking height measurements and determining the age of selected trees within stands of a given species. This index is the average height, in feet, that the trees attain in a specified number of years. The index is based on 30 years for eastern cottonwood, 35 years for American sycamore, and 50 years for pine and all other species. It applies to fully stocked, even-aged, unmanaged stands. The estimates of the productivity of the soils in this survey are based on published data *(4, 5, 6, 7, 8)*.

The *productivity class* represents an expected volume produced by the most important trees, expressed in cubic meters per hectare per year.

Trees to plant are those that are used for reforestation or, under suitable conditions, natural regeneration. They are suited to the soils and can produce a commercial wood crop. The desired product, topographic position (such as a low, wet area), and personal preference are three factors among many that can influence the choice of trees for use in reforestation.

Recreation

In table 10, the soils of the survey area are rated according to the limitations that affect their suitability for recreation. The ratings are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation are also important. Soils subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

In table 10, the degree of soil limitation is expressed as slight, moderate, or severe. *Slight* means that soil properties are generally favorable and that limitations are minor and easily overcome. *Moderate* means that limitations can be overcome or alleviated by planning, design, or special maintenance. *Severe* means that soil properties are unfavorable and that limitations can be offset only by costly soil reclamation, special design, intensive maintenance, limited use, or by a combination of these measures.

The information in table 10 can be supplemented by other information in this survey, for example, interpretations for septic tank absorption fields in table 13 and interpretations for dwellings without basements and for local roads and streets in table 12.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The best soils have gentle slopes and are not wet or subject to flooding during the period of use. The surface has few or no stones or boulders, absorbs rainfall readily but remains firm, and is not dusty when dry. Strong slopes and stones or boulders can greatly increase the cost of constructing campsites.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The best soils for picnic areas are firm when wet, are not dusty when dry, are not subject to flooding during the period of use, and do not have slopes, stones, or boulders that increase the cost of shaping sites or of building access roads and parking areas.

Playgrounds require soils that can withstand intensive foot traffic. The best soils are almost level and are not wet or subject to flooding during the season of use. The surface is free of stones and boulders, is firm after rains, and is not dusty when dry. If grading is needed, the depth of the soil over bedrock or a hardpan should be considered.

Paths and trails for hiking and horseback riding should require little or no cutting and filling. The best soils are not wet, are firm after rains, are not dusty when dry, and are not subject to flooding more than once a year during the period of use. They have moderate slopes and few or no stones or boulders on the surface.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. The best soils for use as golf fairways are firm when wet, are not dusty when dry, and are not subject to prolonged flooding during the period of use. They have moderate slopes and no stones or boulders on the surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Billy R. Craft, biologist, Natural Resources Conservation Service, helped prepare this section.

Vermilion Parish has a large acreage of openland, marshland, and swampland and a small acreage of woodland. These land uses provide habitat for many kinds of wildlife. The marshes have State-wide and National significance because they provide habitat for wintering waterfowl.

The marshes and swamps make up about 372,000 acres, or about 33 percent of the land area in the parish. Most of the species of waterfowl that use the Mississippi and Central Flyways either winter in the marshes or stop for food and rest during their migration. The mottled duck is a permanent resident. Common furbearers that live in the marshes and swamps are nutria, muskrat, raccoon, otter, and mink. American alligators are very abundant. The marshes also provide habitat for many resident and migratory nongame birds. Swamp rabbits and cottontail rabbits are abundant. They live on spoil banks and on ridges, or cheniers. The marshes are part of a coastal estuarine complex that provides nursery areas for marine and estuarine species. They support plant communities that are important in producing detritus, which benefits both marine and estuarine systems.

The saline marshes make up about 27,783 acres in the parish. They occur as a narrow band in areas adjacent to the Gulf of Mexico. Only Scatlake soils are in these marshes. They are regularly inundated by salt water from the gulf. The common plants in the brackish marshes include smooth cordgrass, seashore saltgrass, needlegrass rush, marshhay cordgrass, bushy seaoxeye, and saltwort.

The brackish marshes make up about 130,813 acres in the parish. They provide habitat for large numbers of geese, muskrat, mink, otter, and raccoon. Moderate numbers of ducks, nutria, American alligators, and swamp rabbits also use these marshes. The brackish marshes are especially valuable as nursery areas for marine and estuarine species.

The freshwater marshes are mainly north of Louisiana Highway 82 in the area of White Lake. They make up about 203,081 acres in the parish. They provide some of the best wildlife habitat. The main soils in these marshes include Allemands, Ged, and Larose soils. The common plants include maidencane, alligatorweed, bulltongue, pickerelweed, cattail, smartweed, and common rush. The freshwater marshes provide habitat for ducks, crawfish, nutria, rabbits, mink, otter, raccoon, white-tailed deer, and American alligators. They have the highest population of nutria of the three types of marsh.

Vermilion Parish has about 332,171 acres of brackish and freshwater lakes, ponds, and streams that produce high populations of fresh and estuarine fish. Sport fishing and commercial fishing are important enterprises in the parish.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 11, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn and wheat.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, bahiagrass, bermudagrass, and clover.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, switchgrass, panicum, and lespedeza.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, sweetgum, hawthorn, dogwood, and hickory. Examples of fruit-producing shrubs that are suitable for planting on soils rated *good* are mayhaw, persimmon, and sumac.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine and cedar.

Shrubs are bushy woody plants that produce fruit, buds, twigs, bark, and foliage. Soil properties and features that affect the growth of shrubs are depth of the root zone, available water capacity, salinity, and soil moisture. Examples of shrubs are American beautyberry, waxmyrtle, and deciduous holly.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, saltgrass, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness, surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous plants or coniferous plants or both and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, otter, mink, nutria, and beaver.

Marshland Management

The general management needed to prevent the loss of marshland and to improve the habitat for wetland wildlife in the marshes is suggested in this section. Planners of management systems for individual areas should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information is available at the local office of the Natural Resources Conservation Service, the Cooperative Extension Service, or the Louisiana Agricultural Experiment Station.

Loss of the coastal marshes in Louisiana has reached a crisis level. Vermilion Parish is in an area of the State where the rate of this loss is highest. The loss is the result of both natural events and human activities.

Geologic subsidence of the Gulf Coast Marsh is the main natural cause for the loss *(17, 27).* As the

Continental Shelf and adjoining marshes slowly subside, some of the marshes at the lowest elevations become submerged below sea level. Little can be done about the losses caused by these natural events. The deterioration of marshes caused by human activities, however, can be controlled by better management and restraint. Installing drainage systems and constructing channels for navigation accelerate the rates of erosion, subsidence, and saltwater intrusion.

Coastal erosion changes areas of marshland to areas of open water. This loss generally is permanent because the open water is too deep for revegetation.

The production of fish and wildlife resources in the marshes of the parish is directly related to the marsh plant community. When the plants are killed by increases in the level of salinity or by other factors, the wildlife habitat is degraded. Each plant species and community requires a definite range of salinity and water levels. The marsh plants are the basic source of energy for the dependent animal populations, such as muskrat, and conditions that enhance plant growth improve the habitat for fish and other wildlife. The need for maintaining the wildlife habitat in the marshes is very important ecologically and economically.

The organic soils in the marshes are very sensitive to increases in the level of salinity. Intrusions of salt water into brackish and freshwater marshes have become more common in recent years. The increased salinity causes the loss of surface vegetation. When the plants die, they start decomposing and eventually are carried out of the marshes by tidal action. In a very short time, the surface soil is lost and the areas revert to open water.

Many opportunities exist for improving the habitat in the marshes of Vermilion Parish for fish and other wildlife *(24)*. The marshland is a delicately balanced ecosystem that requires an interdisciplinary approach when management practices that can improve the habitat for waterfowl, furbearers, and fish are planned and implemented. The following paragraphs describe some of the suggested measures.

Weirs are low-level dams built in watercourses in the marshes to improve water management. These water-control structures stabilize water levels in the marshes, reduce the turbidity level of the water, improve the condition of the plant community, and improve accessibility for trappers and hunters during winter by holding water in bayous and canals. Weirs that have fixed crests generally are about 6 inches below the average marsh level. These weirs are most useful in brackish marshes. Other types of water-control structures are needed in freshwater marshes.

Prescribed or controlled burning is a very useful and economical technique that can improve the conditions of vegetation in the marshes. Periodic controlled burning helps to maintain a good variety of marsh plants. This variety has positive impact on furbearers, such as muskrat, and on other wildlife species. Prescribed burning is most effective in brackish marshes, but it is also effective in freshwater marshes. With regard to wildlife, the best time for controlled burning is in fall. Winter burning, however, also has some positive effects on wildlife habitat.

Leveed impoundments can be installed in areas where soils are suitable for construction. Almost every form of marsh wildlife uses the impoundments for feeding, roosting, or cover areas. Landowner objectives, the type of marsh, and other factors determine the management techniques to use on an impoundment.

Shoreline erosion control is one of the primary concerns in the parish and in the entire coastal area. Numerous studies and field trials have been conducted to determine measures that can help to control shoreline erosion. Structural and vegetative measures or a combination of both are currently used. Specific site information is needed when the proper combination of structural and vegetative measures is planned.

Smooth cordgrass is one of the most promising plants grown to control erosion in the tidal zone of saline and brackish areas. This cordgrass generally is available locally. It is easily established in the tidal zone, where a large part of the erosion is occurring. Smooth cordgrass can withstand a wide range in salinity, expands rapidly in the tidal zone, normally provides shoreline protection in one growing season, and forms a dense stand that dissipates the energy of waves. Many other plants can be established to control shoreline erosion.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the "Soil Properties" section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil within a depth of 5 or 6 feet, and because of the map scale, small areas of different *soils may be included within the mapped areas of a specific soil.*

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about grain-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 or 6 feet of the surface, soil wetness, depth to a seasonal high water table, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the "Glossary."

Building Site Development

Table 12 shows the degree and kind of soil limitations that affect shallow excavations, dwellings without basements, small commercial buildings, local roads and streets, and lawns and landscaping. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required. Special feasibility studies may be required where the soil limitations are severe.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for basements, graves, utility lines, open ditches, and other purposes. The ratings are based on soil properties, site features, and observed performance of the soils. The ease of digging, filling, and compacting is affected by the depth to bedrock, a cemented pan, or a very firm, dense layer, stone content, soil texture, and slope. The time of the year that excavations can be made is affected by the depth to a seasonal high water table and the susceptibility of the soil to flooding. The resistance of the excavation walls or banks to sloughing or caving is affected by soil texture and depth to the water table.

Dwellings and *small commercial buildings* are structures built on shallow foundations on undisturbed soil. The load limit is the same as that for single-family dwellings no higher than three stories. Ratings are made for small commercial buildings without basements and for dwellings without basements. The ratings are based on soil properties, site features, and observed performance of the soils. A high water table, flooding, shrinking and swelling, and organic layers can cause the movement of footings. Depth to a high water table, depth to bedrock or to a cemented pan, large stones, and flooding affect the ease of excavation and construction. Landscaping and grading that require cuts and fills of more than 5 or 6 feet are not considered.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or stabilized soil material; and a flexible or rigid surface. Cuts and fills are generally limited to less than 6 feet. The ratings are based on soil properties, site features, and observed performance of the soils. Depth to bedrock or to a cemented pan, depth to a high water table, flooding, large stones, and slope affect the ease of excavating and grading. Soil strength (as inferred from the engineering classification of the soil), shrink-swell potential, frost action potential, and depth to a high water table affect the traffic-supporting capacity.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. The ratings are based on soil properties, site features, and observed performance of the soils. Soil reaction, depth to a high water table, depth to bedrock or to a cemented pan, the available water capacity in the upper 40 inches, and the content of salts, sodium, and sulfidic materials affect plant growth. Flooding, wetness, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer affect trafficability after vegetation is established.

Sanitary Facilities

Table 13 shows the degree and the kind of soil limitations that affect septic tank absorption fields, sewage lagoons, and sanitary landfills. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increases in construction costs, and possibly increased maintenance are required.

Table 13 also shows the suitability of the soils for use as daily cover for landfill. A rating of *good* indicates that soil properties and site features are favorable for the use and that good performance and low maintenance can be expected; *fair* indicates that soil properties and site features are moderately favorable for the use and one or more soil properties or site features make the soil less desirable than the soils rated good; and *poor* indicates that one or more soil properties or site features are unfavorable for the use and overcoming the unfavorable properties requires special design, extra maintenance, or costly alteration.

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 72 inches is evaluated. The ratings are based on soil properties, site features, and observed performance of the soils. Permeability, depth to a high water table, depth to bedrock or to a cemented pan, and flooding affect absorption of the effluent. Large stones and bedrock or a cemented pan interfere with installation.

Unsatisfactory performance of septic tank absorption fields, including excessively slow absorption of effluent, surfacing of effluent, and hillside seepage, can affect public health. Ground water can be polluted if highly permeable sand and gravel or fractured bedrock is less than 4 feet below the base of the absorption field, if slope is excessive, or if the water table is near the surface. There must be unsaturated soil material beneath the absorption field to filter the effluent effectively. Many local ordinances require that this material be of a certain thickness.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Lagoons generally are designed to hold the sewage within a depth of 2 to 5 feet. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water.

Table 13 gives ratings for the natural soil that makes up the lagoon floor. The surface layer and, generally, 1 or 2 feet of soil material below the surface layer are excavated to provide material for the embankments. The ratings are based on soil properties, site features, and observed performance of the soils. Considered in the ratings are slope, permeability, depth to a high water table, depth to bedrock or to a cemented pan, flooding, large stones, and content of organic matter.

Excessive seepage resulting from rapid permeability in the soil or a water table that is high enough to raise the level of sewage in the lagoon causes a lagoon to function unsatisfactorily. Pollution results if seepage is excessive or if floodwater overtops the lagoon. A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor.

Sanitary landfills are areas where solid waste is disposed of by burying it in soil. There are two types of landfill—trench and area. In a trench landfill, the waste is placed in a trench. It is spread, compacted, and covered daily with a thin layer of soil excavated at the site. In an area landfill, the waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site.

Both types of landfill must be able to bear heavy vehicular traffic. Both types involve a risk of ground-water pollution. Ease of excavation and revegetation should be considered.

The ratings in table 13 are based on soil properties, site features, and observed performance of the soils. Permeability, depth to bedrock or to a cemented pan, depth to a water table, slope, and flooding affect both types of landfill. Texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium affect trench landfills. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, a limitation rated slight or moderate may not be valid. Onsite investigation is needed.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste.

Soil texture, wetness, coarse fragments, and slope affect the ease of removing and spreading the material during wet and dry periods. Loamy or silty soils that are free of large stones or excess gravel are the best cover for a landfill. Clayey soils are sticky or cloddy and are difficult to spread; sandy soils are subject to wind erosion.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as final cover for a landfill should be suitable for plants. The surface layer generally has the best workability, more organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 14 gives information about the soils as a source of roadfill, sand, gravel, and topsoil. The soils are rated *good, fair,* or *poor* as a source of roadfill and topsoil. They are rated as a *probable* or *improbable* source of sand and gravel. The ratings are based on soil properties and site features that affect the removal of the soil and its use as construction material. Normal compaction, minor processing, and other standard construction practices are assumed. Each soil is evaluated to a depth of 5 or 6 feet.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the soil material below the surface layer to a depth of 5 or 6 feet. It is assumed that soil layers will be mixed during excavating and spreading. Many soils have layers of contrasting suitability within their profile. The table showing engineering index properties provides detailed information about each soil layer. This information can help to determine the suitability of each layer for use as roadfill. The performance of soil after it is stabilized with lime or cement is not considered in the ratings.

The ratings are based on soil properties, site features, and observed performance of the soils. The thickness of suitable material is a major consideration. The ease of excavation is affected by large stones, a high water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the engineering classification of the soil) and shrink-swell potential.

Soils rated *good* contain significant amounts of sand or gravel or both. They have at least 5 feet of suitable material, a low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have a moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet and have a water table at a depth of less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 14, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, a water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal high water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant nutrients as it decomposes.

Water Management

Table 15 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock or to a cemented pan, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, or sulfur. Availability of drainage outlets is not considered in the ratings.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or to a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Grassed waterways are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or to a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts or sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey. The data and the estimates of soil and water features, listed in tables, are explained on the following pages.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine grain-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties shown in the tables include the range of grain-size distribution and Atterberg limits, the engineering classification, and the physical and chemical properties of the major layers of each soil. Pertinent soil and water features also are given.

Engineering Index Properties

Table 16 gives estimates of the engineering classification and of the range of index properties for the major layers of each soil in the survey area. Most soils have layers of contrasting properties within the upper 5 or 6 feet.

Depth to the upper and lower boundaries of each layer is indicated. The range in depth and information on other properties of each layer are given for each soil series under the heading "Soil Series and Their Morphology."

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is as much as 15 percent, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the "Glossary."

Classification of the soils is determined according to the Unified soil classification system *(3)* and the system adopted by the American Association of State Highway and Transportation Officials *(2)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of grain-size distribution, liquid limit, and plasticity index generally are rounded to the nearest 5 percent. Thus, if the range of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is omitted in the table.

Physical and Chemical Properties

Table 17 shows estimates of some characteristics and features that affect soil behavior. These estimates are given for the major layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Clay as a soil separate, or component, consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each major soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The amount and kind of clay greatly affect the fertility and physical condition of the soil. They determine the ability of the soil to adsorb cations and to retain moisture. They influence the shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at ⅓-bar moisture tension. Weight is determined after drying the soil at 105 degrees C. In this table, the estimated moist bulk density of each major soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. A bulk density of more than 1.6 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The estimates indicate the rate of movement of water through the soil when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage in each major soil layer is stated in inches of water per inch of soil. The capacity varies, depending on soil properties that affect the retention of water and the depth of the root zone. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The classes are *low,* a change of less than 3 percent; *moderate,* 3 to 6 percent; and *high,* more than 6 percent. *Very high,* more than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 17, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained or increased by returning crop residue to the soil. Organic matter affects the available water capacity, infiltration rate, and tilth. It is a source of nitrogen and other nutrients for crops.

Soil and Water Features

Table 18 gives estimates of various soil and water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are used to estimate runoff from precipitation. Soils are assigned to one of four groups. They are grouped according to the infiltration of water when the soils are thoroughly wet and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a permanent high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Flooding, the temporary covering of the soil surface by flowing water, is caused by overflowing streams, by runoff from adjacent slopes, or by inflow from high tides. Shallow water standing or flowing for short periods after rainfall or snowmelt is not considered flooding. Standing water in swamps and marshes or in a closed depression is considered ponding.

Table 18 gives the frequency and duration of flooding and the time of year when flooding is most likely.

Frequency, duration, and probable dates of occurrence are estimated. Frequency generally is expressed as *none, rare, occasional,* or *frequent. None* means that flooding is not probable. *Rare* means that flooding is unlikely but possible under unusual weather conditions (the chance of flooding is nearly 0 percent to 5 percent in any year). *Occasional* means that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year). *Frequent* means that flooding occurs often under normal weather conditions (the chance of flooding is more than 50 percent in any year). Duration is expressed as *very brief* (less than 2 days), *brief* (2 to 7 days), *long* (7 days to 1 month), and *very long* (more than 1 month). The time of year that floods are most likely to occur is expressed in months. About two-thirds to three-fourths of all flooding occurs during the stated period.

The information on flooding is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered is local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

High water table (seasonal) is the highest level of a saturated zone in the soil in most years. The estimates are based mainly on the evidence of a saturated zone, namely grayish colors or mottles in the soil. Indicated in table 18 are the depth to the seasonal high water table; the kind of water table, that is, *perched* or *apparent*; and the months of the year that the water table commonly is highest. A water table that is seasonally high for less than 1 month is not indicated in table 18.

An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places an upper, or perched, water table is separated from a lower one by a dry zone.

The two numbers in the column showing depth to the water table indicate the normal range in depth to a saturated zone. Depth is given to the nearest half foot. The first numeral in the range indicates the highest water level. A plus sign preceding the range in depth indicates that the water table is above the surface of the soil. "More than 6.0" indicates that the water table is below a depth of 6 feet or that it is within a depth of 6 feet for less than a month.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. Table 18 shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low, moderate,* or *high.* It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Soil Fertility Levels

Dr. M.C. Amacher, Department of Agronomy, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, prepared this section.

This section gives information concerning the environmental factors and physical and chemical properties that affect the potential of soils for crop production. It also lists the methods used to obtain the chemical analyses of the soils that are sampled.

Crop composition and yields are a function of many soil, plant, and environmental factors. The environmental factors include light (intensity and duration), temperature of the air and soil, precipitation (distribution and amount), and atmospheric carbon dioxide concentration.

Plant factors are species and hybrid specific. They include the rate of nutrient and water uptake and the rate of growth and related plant functions.

Soil factors consist of both physical properties and chemical properties. The physical properties include particle-size distribution, texture, structure, surface area, bulk density, water retention and flow, and aeration. The chemical properties can be separated into quantity, intensity, quantity-intensity relationship, and replenishment factors.

The *quantity factor* refers to the amount of an element in the soil that is readily available for uptake by plants. It is often referred to as the available supply of an element. When the quantity factor is ascertained, the available supply of an element is removed from the soil by a suitable extractant and is analyzed.

The *intensity factor* refers to the concentration of an element species in the soil water. It is a measure of the availability of an element for uptake by plant roots. The availability of an element to plants differs in two soils that have identical quantities of the element but have different intensity factors.

The *relative intensity factor* refers to the effect that the availability of one element has on the availability of another.

The *quantity-intensity relationship factor* refers to the reactions between the surface and soil water that control the distribution of element species between the available supply in the soil and the soil water. A special quantity-intensity relationship is the buffer capacity of the soil for a given element. The buffer capacity is the amount of a given element that must be added to or removed from the available supply to produce a given change in the intensity factor for that element.

The *replenishment factor* refers to the rate of replenishment of the available supply and intensity factors by weathering reactions, additions of fertilizer, and transport by mass flow and diffusion.

These factors are interdependent. The magnitude of the factors and the interactions among them control crop response. The relative importance of each factor changes from soil to soil, crop to crop, and environment to environment. The soil factors are only part of the overall system.

The goal of soil testing is to provide information for a soil and crop management program that establishes and maintains optimum levels and proportions of the essential elements in the soil for crop and animal nutrition and protects the environment against the buildup of potentially toxic levels of essential and nonessential elements. Current soil tests measure one soil factor—the available supply of one or more nutrients in the plow layer. Existing soil tests can generally diagnose the problem, and reliable recommendations can be made to correct the problem. Soil management systems generally are based on physical and chemical alterations of the plow layer. The characteristics of this layer can vary from one location to another, depending on management practices and land use.

Subsoil horizons are less likely to change as a result of alteration of the plow layer, or they change very slowly. They reflect the inherent ability of the soil to supply nutrients for plant growth. If soil fertility recommendations based on current soil tests are followed, major fertility deficiencies in the plow layer are normally corrected.

Crop and environmental factors, the physical properties of the plow layer, and the physical and chemical properties of the subsoil can limit crop production. Information about the supply of available nutrients in the subsoil can be used as a basis for an evaluation of the native fertility level of the soil.

A number of soils were sampled during the soil survey and analyzed for content of organic matter; reaction; extractable phosphorus; exchangeable cations of calcium, magnesium, potassium, sodium, aluminum, and hydrogen; total acidity; and cation-exchange capacity *(1, 14, 15, 20, 21, 25)*. The results are summarized in table 19. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(25)*.

pH—1:1 soil/water solution (8C1a).
Organic matter—acid-dichromate oxidation (6A1a).
Extractable phosphorus—Bray 2 extractant (0.03 molar ammonium fluoride-0.1 molar hydrochloric acid).
Exchangeable bases—pH 7, 1 molar ammonium acetate-calcium (6N2), magnesium (6O2), potassium (6Q2), sodium (6P2).
Exchangeable aluminum and hydrogen—1 molar potassium chloride (6G2).
Total acidity—pH 8.2, barium chloride-triethanolamine (6H1a).
Effective cation-exchange capacity—sum of bases plus exchangeable aluminum and hydrogen (5A3b).
Sum cation-exchange capacity—sum of bases plus total acidity (5A3a).
Base saturation—sum of bases/sum cation-exchange capacity (5C3).
Exchangeable sodium percentage—exchangeable sodium/sum cation-exchange capacity.
Aluminum saturation—exchangeable aluminum/effective cation-exchange capacity.

Based on soil fertility, four major types of soil profiles can be distinguished in Vermilion Parish. The first type includes soils having a relatively high level of available nutrients throughout. This type reflects the relatively high fertility status of the parent material in which the soils formed and a relatively young age or a limited weathering in the soil profile.

The second type includes soils in which the level of available nutrients is relatively low in the surface layer and generally increases with increasing depth. These soils formed in relatively fertile parent material. They have been subject to weathering over a long period of time or subject to relatively intense weathering. Crops on these soils exhibit deficiency symptoms early in the growing season if the level of available nutrients in the surface layer is low. If the crop roots are able to penetrate to the more fertile subsoil as the growing season progresses, deficiency symptoms generally disappear.

The third type includes soils that have a relatively high level of available nutrients in the surface layer but a relatively low level in the subsurface layer. These soils formed in material that is low in fertility or are old soils that have been subject to intense weathering over a long period of time. The higher nutrient levels in the surface layer generally are a result of the addition of fertilizer or biocycling in undisturbed soils.

The fourth type includes soils that have a relatively low level of available nutrients throughout. These soils formed in material that is low in fertility or are old soils that have been subject to intense weathering over a long period of time. They have not accumulated nutrients in the surface layer as a result of the addition of fertilizer or biocycling.

Soil properties, such as reaction and acidity, can also show the general distribution patterns described in the previous paragraphs. These patterns result from the interactions of parent material, weathering (climate), time, and, to a lesser extent, living organisms and topography.

Nitrogen is generally the most limiting nutrient element affecting crop production because plants have a high demand for it. Because reliable nitrogen soil tests are not available, nitrogen fertilizer recommendations are nearly always based on the nitrogen requirement of the crop rather than on nitrogen soil test levels.

Generally, more than 90 percent of the nitrogen in the surface layer is organic. Most of the nitrogen in the subsoil commonly is fixed ammonium nitrogen. These forms of nitrogen are unavailable for plant uptake, but they can be converted to readily available ammonium and nitrate species.

Despite the lack of adequate nitrogen soil tests, the amount of readily available ammonium and nitrate nitrogen in soils, the amount of organic nitrogen, the rate of mineralization of organic nitrogen to available forms, and the rate of conversion of fixed ammonium nitrogen to available forms can provide information on the fertility status of a soil with respect to nitrogen. Unfortunately, because the amounts and rates of transformation of the various forms of nitrogen in the soils of Vermilion Parish are unknown, no assessment of the nitrogen fertility status of these soils can be given.

Phosphorus occurs in soils as discrete solid phase minerals, such as hydroxyapatite, variscite, and strengite; as occluded or coprecipitated phosphorus in other minerals; as retained phosphorus on mineral surfaces, such as carbonates, metal oxides, and layer silicates; and in organic compounds. Most of the phosphorus is unavailable for plant uptake.

The Bray 2 extractant tends to remove more phosphorus than the more commonly used Bray 1, Mehlich 1, and Olsen extractants. These extractants provide an estimate of the supply of phosphorus available to plants. The Bray 2 extractable phosphorus content is low throughout most of the soils on the Gulf Coast Prairies and in the uplands in Vermilion Parish. Some of these soils, such as Coteau, Frost, Frozard, and Jeanerette soils, have medium levels of extractable phosphorus in the lower part. A few of the soils, such as Memphis, Midland, and Morey soils, have medium levels of phosphorus in the plow layer and low levels in the rest of the profile. The medium levels of phosphorus in the plow layer generally are the result of recent additions of fertilizer phosphorus. Additions of fertilizer phosphorus are required for optimum crop production on these soils.

Potassium occurs in three major forms in soils—exchangeable potassium associated with negatively charged sites on clay mineral surfaces, nonexchangeable potassium trapped between clay mineral interlayers, and structural potassium within the crystal lattice of minerals. Exchangeable potassium in soils can be replaced by other cations and generally is readily available for plant uptake. To become available for plant uptake, nonexchangeable potassium and structural potassium must be converted to exchangeable potassium through weathering reactions.

The content of exchangeable potassium in soils is an estimate of the supply of potassium available to plants. The content of available potassium in soils on the Gulf Coast Prairies and on uplands in Vermilion Parish generally is very low or low, according to soil test interpretation guidelines. As depth increases, the content of exchangeable potassium increases in some soils, such as Acadia, Crowley, and Judice soils; decreases in some soils, such as Coteau soils; and remains about the same in other soils, such as Ged, Frost, and Midland soils. In the soils of the Gulf Coast Marsh, the content of exchangeable potassium generally is high in the upper part of the profile and decreases with increasing depth.

Crops respond to applications of potassium fertilizer if the content of potassium is very low or low. Very low or low levels should be gradually built up by adding potassium fertilizer where possible. Where the soils contain a sufficient amount of clay to hold the potassium, the content of exchangeable potassium can be maintained by adding enough potassium fertilizer to make up for that removed by crops, the fixation of exchangeable potassium to nonexchangeable potassium, and leaching.

Magnesium occurs in soils as exchangeable magnesium associated with negatively charged sites on clay mineral surfaces and as structural magnesium in mineral crystal lattices. Exchangeable magnesium generally is readily available for plant uptake, whereas structural magnesium must be converted to exchangeable magnesium during weathering reactions.

The content of exchangeable magnesium in the soils on the Gulf Coast Prairies and in the uplands generally is high and increases with increasing depth. The content in the soils of the Gulf Coast Marsh generally is very high and varies with increasing depth. In most of the soils in the parish, the content is more than adequate for crop production. Magnesium deficiencies in plants are normally rare. As a result, magnesium fertilizer generally is not needed.

Calcium occurs in soils as exchangeable calcium associated with negatively charged sites on clay mineral surfaces and as structural calcium in mineral crystal lattices. Unlike structural calcium, exchangeable calcium generally is available for plant uptake.

Calcium generally is the most abundant exchangeable cation in the soils in Vermilion Parish. In most of the soils of the parish, the content of exchangeable calcium is higher than or about the same as the content of exchangeable magnesium.

As depth increases, the content of exchangeable calcium increases in some soils, such as Acadia, Coteau, Crowley, Frost, Ged, Judice, Memphis, Mowata, and Patoutville soils, and remains about the same in other soils, such as Morey soils. A content of exchangeable calcium that is higher in the subsoil than in the surface layer generally is associated with a high content of clay in the subsoil or with free carbonates.

The content of organic matter in a soil greatly influences other soil properties. A high content of organic matter in mineral soils is desirable, and a low content can lead to many problems. Increasing the content of organic matter can greatly improve soil structure, drainage, and other physical properties and can increase the available water capacity, the cation-exchange capacity, and the content of nitrogen.

Increasing the content of organic matter in a soil is very difficult because organic matter is continually subject to microbial degradation, especially in Louisiana, where higher temperatures increase the extent of microbial activity and thus also increase the degradation rate. Native plant communities are in a dynamic state if the rate of organic matter breakdown is balanced by the rate at which fresh material is added. Disruption of this natural process can lead to a significant decrease in the content of organic matter. Unsound management practices can lead to a further decrease in organic matter content.

Even if no degradation of organic matter occurs, 10 tons of organic matter input per acre is needed to raise the organic matter content in the upper 6 inches of the soil by just 1 percent. Since breakdown of organic matter occurs in the soil, large amounts of organic matter must be added for several decades before a small increase in the content can be achieved. Conservation tillage and cover crops can slowly increase the content of organic matter or at least prevent further decreases.

The content of organic matter in the soils on the Gulf Coast Prairies and in the uplands in Vermilion Parish generally is low. In Ged soils, it decreases sharply with increasing depth because additions of fresh organic material are limited to the surface layer. The low content of organic matter reflects a high rate of organic matter degradation, erosion, and cultural practices that make maintenance of a higher content of organic matter difficult. Except for Kaplan soils, the soils of the Gulf Coast Marsh have a high content of organic matter in the surface layer.

Sodium occurs in soils as exchangeable sodium associated with negatively charged sites on clay mineral surfaces and as structural sodium in mineral crystal lattices. Because sodium is readily soluble and generally is not strongly retained by soils, well drained soils that are subject to a moderate or more intense degree of weathering from rainfall normally do not have significant amounts of sodium. Soils in low rainfall environments, soils in which drainage is restricted in the subsoil, and soils of the Gulf Coast Marsh have significant or substantial amounts of sodium. High levels of exchangeable sodium are associated with undesirable physical properties, such as poor structure, slow permeability, and restricted drainage.

Most of the soils in Vermilion Parish have more exchangeable sodium than exchangeable potassium. Where the content of exchangeable sodium is more than about 6 percent of the cation-exchange capacity within the rooting depth of crops, production can be limited. The soils of the Gulf Coast Prairies and uplands that are used for agricultural purposes have a high content of exchangeable sodium. This high content is below the surface layer. Nevertheless, it helps to restrict the drainage of these soils.

The pH of the soil solution in contact with the soil greatly affects other soil properties. Soil pH is an intensity factor rather than a quantity factor. The lower the pH, the more acidic the soil. The pH controls the availability of essential and nonessential elements for plant uptake by controlling mineral solubility, ion exchange, and adsorption and desorption reaction with the surface. The pH also affects microbial activity.

Aluminum occurs in soils as exchangeable monomeric hydrolysis species, nonexchangeable polymeric hydrolysis species, aluminum oxides, and aluminosilicate minerals. Exchangeable aluminum in soils is determined by extraction with neutral salts, such as potassium chloride and barium chloride. The exchangeable aluminum in soils is directly related to pH. If the pH is less than 5.5, the soils have significant amounts of exchangeable aluminum that has a charge of plus 3 and is toxic to plants. Significant reductions in plant growth can be expected for aluminum sensitive crops in soils that have a pH of less than 5.5 and appreciable amounts of exchangeable aluminum. The toxic effects of aluminum on plants can be alleviated by adding lime to convert exchangeable aluminum to nonexchangeable polymeric hydrolysis species. A high content of organic matter can also alleviate aluminum toxicity by complexing the aluminum.

Sources of exchangeable hydrogen in soils include hydrolysis of exchangeable and nonexchangeable aluminum and pH-dependent exchange sites on metal oxides, certain layer silicates, and organic matter. As determined by extraction with neutral salts, such as potassium chloride, exchangeable hydrogen generally is not a major component of soil acidity because it is not readily replaced by other cations unless accompanied by a neutralized reaction. Most of the neutral salt exchangeable hydrogen in soils apparently results from aluminum hydrolysis.

Acidity from hydrolysis of neutral salt exchangeable aluminum plus neutral salt exchangeable hydrogen from pH-dependent exchange sites makes up the exchangeable acidity in soils. Exchangeable acidity is determined by the pH of the soil. Titratable acidity is the amount of acidity neutralized to a selected pH, generally pH 7.0 or 8.2, and constitutes the total potential acidity of a soil determined up to a given pH. All sources of soil acidity, including hydrolysis of monomeric and polymeric aluminum species and hydrogen from pH-dependent exchange sites on metal oxides, layer silicates, and organic matter, contribute to the total potential acidity. Total potential acidity in soils is ascertained by titration with base or incubation with lime, extraction with a buffered extractant followed by titration of the buffered extractant (pH 8.2, barium chloride-triethanolamine method), or equilibration with buffers followed by estimation of acidity from changes in buffer pH.

The soils of the Gulf Coast Prairies and uplands in the parish have a low pH and a high level of total acidity in the upper horizons, but pH generally increases with increasing depth. Frozard and Midland soils have an alkaline or high pH level in the subsoil and an acid surface layer. The total acidity, however, may not change much with increasing depth. The soils of the Gulf Coast Marsh generally have a low pH in the surface layer and a high pH in the subsoil.

The cation-exchange capacity represents the available supply of nutrient and nonnutrient cations in the soil. It is the amount of cations on permanent and pH-dependent, negatively charged sites on soil surfaces. Permanent-charge cation-exchange sites occur because a net negative charge develops on a mineral surface from substitution of ions within the crystal lattice. A negative charge developed from ionization of surface hydroxyl groups on minerals and organic matter produces pH-dependent cation-exchange sites.

Several methods for determining cation-exchange capacity are available. They can be classified as one of two types—methods that use unbuffered salts to measure the cation-exchange capacity at the pH of the soil and methods that use buffered salts to measure the cation-exchange capacity at a specified pH. These methods produce different results because the method that uses unbuffered salts includes only part of the pH-dependent cation-exchange capacity in the overall cation-exchange capacity and the method that uses buffered salts includes all of the pH-dependent cation-exchange capacity up to the pH of the buffer (generally 7.0 or 8.2) in the overall cation-exchange capacity. Errors in the saturation, washing, and replacement steps also cause different results.

The effective cation-exchange capacity is the sum of exchangeable bases (calcium, magnesium, potassium, and sodium) determined by extraction with pH 7.0, 1 molar ammonium acetate plus the sum of neutral salt exchangeable aluminum and hydrogen (exchangeable acidity). The sum cation-exchange capacity is the sum of exchangeable bases plus the total acidity determined by extraction with pH 8.2, barium chloride-triethanolamine. The effective cation-exchange capacity includes only that part of the pH-dependent cation-exchange capacity that is determined by exchange of hydrogen with a neutral salt, whereas the sum cation-exchange capacity includes all of the pH-dependent cation-exchange capacity up to pH 8.2. If a soil has no pH-dependent exchange sites or the pH of the soil is about 8.2, the effective cation-exchange capacity and the sum cation-exchange capacity are approximately the same. The larger the cation-exchange capacity, the greater the capacity to store nutrient cations.

Most of the cation-exchange capacity of the soils in Vermilion Parish is permanent-charge cation-exchange capacity from the clays in the soils. The pH-dependent charge is a significant source of the cation-exchange capacity in many of the soils.

Physical and Chemical Analyses of Selected Soils

The results of physical analysis of several typical pedons in the survey area are given in table 20 and the results of chemical analysis in table 21. The data are for soils sampled at carefully selected sites. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." Soil samples were analyzed by the Louisiana Agricultural Experiment Station.

Most determinations, except those for grain-size analysis and bulk density, were made on soil material smaller than 2 millimeters in diameter. Measurements reported as percent or quantity of unit weight were calculated on an ovendry basis. The methods used in obtaining the data are indicated in the list that follows. The codes in parentheses refer to published methods *(25)*.

Sand—(0.05-2.0 mm fraction) weight percentages of material less than 2 mm (3A1).

Silt—(0.002-0.05 mm fraction) pipette extraction, weight percentages of all material less than 2 mm (3A1).

Clay—(fraction less than 0.002 mm) pipette extraction, weight percentages of material less than 2 mm (3A1).

Water retained—pressure extraction, percentage of ovendry weight of less than 2 mm material; ⅓ or ⅒ bar (4B1), 15 bars (4B2).

Water-retention difference—between ⅓ bar and 15 bars for whole soil (4C1).

Bulk density—of less than 2 mm material, saran-coated clods field moist (4A1a), ⅓ bar (4A1d), ovendry (4A1h).

Organic carbon—wet combustion. Walkley-Black modified acid-dichromate, ferric sulfate titration (6A1c).

Total nitrogen—Kjeldahl (6B3).

Extractable cations—ammonium acetate pH 7.0, atomic absorption; calcium (6N2e), magnesium (6O2d), sodium (6P2b), potassium (6Q2b).

Extractable acidity—barium chloride-triethanolamine II (6H2b).

Cation-exchange capacity—ammonium acetate, pH 7.0, steam distillation (5A8b).

Base saturation—ammonium acetate, pH 7.0 (5C1).

Reaction (pH)—1:1 water dilution (8C1f).

Reaction (pH)—potassium chloride (8C1g).

Reaction (pH)—calcium chloride (8C1f).

Aluminum—potassium chloride extraction (6G9).

Iron—acid oxalate extraction (6C9a).

Available phosphorus—(Bray No. 1 and Bray No. 2).

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(23)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or on laboratory measurements. Table 22 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Entisol.

SUBORDER. Each order is divided into suborders, primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Aquent (*Aqu*, meaning water, plus *ent*, from Entisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Fluvaquents (*Fluv*, meaning river, plus *aquent*, the suborder of the Entisols that has an aquic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Fluvaquents.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineral content, temperature regime, depth of the root zone, consistence, moisture equivalent, slope, and permanent cracks. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is very fine, montmorillonitic, nonacid, thermic Typic Fluvaquents.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. There can be some variation in the texture of the surface layer or of the substratum within a series.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. The descriptions are arranged in alphabetic order.

Characteristics of the soil and the material in which it formed are identified for each series. The soil is compared with similar soils and with nearby soils of other series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" *(26)*. Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" *(23)*. Unless otherwise stated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

The map units of each soil series are described in the section "Detailed Soil Map Units."

Acadia Series

The Acadia series consists of somewhat poorly drained, very slowly permeable soils that formed in loamy and clayey alluvium of late Pleistocene age.

These soils are on side slopes of erosional stream channels on the Gulf Coast Prairies. Slopes range from 1 to 3 percent.

Soils of the Acadia series are fine, montmorillonitic, thermic Aeric Ochraqualfs.

Acadia soils commonly are near Basile, Crowley, Kaplan, and Mowata soils. Basile soils are poorly drained and are in drainageways. They are fine-silty. Crowley and Kaplan soils are somewhat poorly drained and are on ridges. Crowley soils have an abrupt textural change between the surface layer and the subsoil. Kaplan soils are more alkaline throughout than the Acadia soils. Mowata soils are poorly drained and are on broad flats. They have an albic horizon that extends into the argillic horizon.

Typical pedon of Acadia silt loam, 1 to 3 percent slopes; about 3 miles southeast of Lake Arthur, 2 miles east of Highway 14, about 2,000 feet west of a parish road, Spanish Land Grant sec. 24, T. 11 S., R. 3 W.

A—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; common medium faint grayish brown (10YR 5/2) mottles; weak fine granular structure; friable; common medium and fine roots; very strongly acid; abrupt wavy boundary.

E—4 to 8 inches; grayish brown (10YR 5/2) silt loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium subangular blocky structure; friable; common medium and fine roots; few fine black concretions of iron and manganese oxide; very strongly acid; clear wavy boundary.

BE—8 to 11 inches; light yellowish brown (10YR 6/4) silty clay loam; many medium and coarse prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films in pores; light gray silt coatings on faces of peds and in cracks; very strongly acid; clear wavy boundary.

Btg1—11 to 22 inches; light brownish gray (10YR 6/2) silty clay; many medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of peds and in some pores; very strongly acid; gradual wavy boundary.

Btg2—22 to 36 inches; light brownish gray (10YR 6/2) silty clay; common medium prominent red (2.5YR 4/6) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds and in some pores; very strongly acid; gradual wavy boundary.

Btg3—36 to 47 inches; gray (10YR 6/1) silty clay loam; many coarse prominent reddish brown (5YR 5/6) mottles; weak medium subangular blocky structure; firm; few distinct clay films on faces of peds; medium acid; gradual wavy boundary.

Cg—47 to 60 inches; grayish brown (10YR 5/2) silty clay loam; common medium distinct brown (10YR 5/3) mottles; massive; firm; mildly alkaline.

The thickness of the solum ranges from 30 to 60 inches. Depth to the fine-textured Btg horizon ranges from 10 to 20 inches. In the upper 30 inches of the profile, at least 50 percent of the effective cation-exchange capacity is occupied by exchangeable aluminum.

The A horizon is 4 to 7 inches thick. It has value of 4 or 5 and chroma of 1 to 3. Reaction ranges from very strongly acid to medium acid.

The E horizon is 2 to 10 inches thick. It has value of 5 or 6 and chroma of 2 to 4. Reaction ranges from very strongly acid to medium acid.

The BE horizon has value of 5 or 6 and chroma of 4 to 8. It is silt loam or silty clay loam. Reaction is very strongly acid or strongly acid.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2, or it has hue of 2.5Y, value of 5 or 6, and chroma of 2. Mottles are in shades of red or brown. The horizon is silty clay or clay in the upper part and silty clay loam or silty clay in the lower part. Reaction ranges from very strongly acid to medium acid.

The Cg horizon has the same range in colors as the Btg horizon. The texture is silty clay loam or silty clay. Reaction ranges from slightly acid to mildly alkaline.

Allemands Series

The Allemands series consists of very poorly drained, organic soils that formed in moderately thick accumulations of decomposed herbaceous material overlying clayey coastal alluvium. These soils are in freshwater coastal marshes that are ponded and flooded most of the time. Slopes are less than 1 percent.

Soils of the Allemands series are clayey, montmorillonitic, euic, thermic Terric Medisaprists.

Allemands soils commonly are near Barbary, Ged, and Larose soils. Barbary, Ged, and Larose soils are in landscape positions similar to those of the Allemands soils. They are mineral.

Typical pedon of Allemands mucky peat; about 7.0 miles southwest of Forked Island, 2.25 miles east of White Lake, 1.0 mile north of the Old Intracoastal Waterway, SW¼NW¼ sec. 10, T. 15 S., R. 1 E.

Oe—0 to 12 inches; dark brown (10YR 4/3) mucky peat; about 50 percent fiber, 20 percent rubbed; massive; very fluid (flows easily between fingers, leaving only live roots in the hand); many medium and fine roots; dominantly herbaceous material; about 25 percent mineral; strongly acid; clear smooth boundary.

Oa1—12 to 18 inches; black (10YR 2/1) muck; about 40 percent fiber, 10 percent rubbed; massive; many medium and fine roots; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); dominantly herbaceous material; about 50 percent mineral; medium acid; clear smooth boundary.

Oa2—18 to 48 inches; dark grayish brown (10YR 4/2) muck; about 40 percent fiber, 15 percent rubbed; massive; few medium and fine roots; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); dominantly herbaceous material; about 50 percent mineral; neutral; clear wavy boundary.

Agb—48 to 60 inches; black (10YR 2/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); mildly alkaline; clear smooth boundary.

Cg—60 to 80 inches; gray (N 5/0) clay; many medium prominent olive (5Y 5/4) mottles; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); moderately alkaline.

The thickness of the organic material ranges from 16 to 51 inches. The organic fraction is dominantly herbaceous material.

The surface tier, at a depth of 0 to 12 inches, has value of 2 to 4 and chroma of 1 to 3. The content of rubbed fiber ranges from 2 to 80 percent. Reaction ranges from strongly acid to slightly acid.

The subsurface tier, at a depth of 12 to 48 inches, has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 to 3. The content of fiber ranges from 1 to 10 percent after rubbing. Reaction is slightly acid or neutral.

The Agb horizon has hue of 10YR, 2.5Y, or 5Y, value of 2 to 4, and chroma of 1. The texture is clay or mucky clay. Reaction ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 10YR, 5Y, 5G, or 5GY, value of 3 to 5, and chroma of 1, or it is neutral in hue and has value of 4 or 5. The texture is mucky clay or clay. Reaction ranges from slightly acid to moderately alkaline.

Andry Series

The Andry series consists of very poorly drained and poorly drained, moderately slowly permeable soils that formed in submerged loess and herbaceous plant remains. These soils are in brackish coastal marshes and former marshes that have been drained. Slopes are less than 1 percent.

Soils of the Andry series are fine-silty, mixed, thermic Typic Argiaquolls.

Andry soils commonly are near Delcomb, Lafitte, and Jeanerette soils. Delcomb and Lafitte soils are slightly lower on the landscape than the Andry soils. They are organic. Jeanerette soils are higher on the landscape than the Andry soils. They do not have a histic epipedon.

Typical pedon of Andry muck; about 7.5 miles south of Erath, midway between Highway 685 and Dugas Canal, SW¼SW¼ sec. 1, T. 14 S., R. 4 E.

Oa—0 to 8 inches; dark grayish brown (10YR 4/2) muck; about 40 percent fiber, about 10 percent rubbed; massive; nonsticky; many live roots; strongly acid; gradual wavy boundary.

A1—8 to 12 inches; black (10YR 2/1) mucky silt loam, gray (10YR 5/1) dry; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); many fine and medium roots; strongly acid; gradual smooth boundary.

A2—12 to 20 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; few medium distinct light olive brown (2.5Y 5/4) mottles; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); few fine roots; slightly acid; gradual smooth boundary.

Btg—20 to 28 inches; very dark gray (10YR 3/1) silt loam, gray (10YR 5/1) dry; few medium and coarse distinct light olive brown (2.5Y 5/4) mottles; weak medium subangular blocky structure; slightly fluid (flows with difficulty between fingers when squeezed, leaving a large amount of residue in the hand); few fine roots; few faint clay films on vertical faces of some peds; mildly alkaline; gradual smooth boundary.

Btgk1—28 to 34 inches; dark gray (5Y 4/1) silt loam; common medium distinct light olive brown (2.5Y 5/4) mottles; weak medium subangular blocky structure; friable; few fine black concretions of iron and manganese oxide; common medium white concretions of calcium carbonate; few faint clay films on vertical faces of some peds; moderately alkaline; gradual smooth boundary.

Btgk2—34 to 45 inches; dark gray (N 4/0) silt loam; common medium prominent yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure; friable; common fine black concretions of iron and manganese oxide; common medium white concretions of calcium carbonate; few faint clay films on vertical faces of peds; strongly alkaline.

BCg—45 to 68 inches; gray (N 5/0) silty clay loam; many medium prominent yellowish brown (10YR 5/6) mottles; weak coarse prismatic structure; firm; sticky and plastic; common fine black concretions of iron and manganese oxide; few dark gray coatings on peds; moderately alkaline.

The thickness of the solum ranges from 40 to 65 inches. Soil salinity ranges from slightly saline to moderately saline throughout the profile.

The Oa horizon has value of 2 to 4 and chroma of 1 or 2. Reaction ranges from very strongly acid to mildly alkaline. It ranges from extremely acid to slightly acid after drainage.

The A horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 1 or 2, or it is neutral in hue and has value of 2 or 3. The texture is mucky silt loam, mucky silty clay loam, silt loam, or silty clay loam. Reaction ranges from strongly acid to mildly alkaline. It ranges from extremely acid to neutral after drainage.

The Btg and Btgk horizons have hue of 10YR, 2.5Y, or 5Y, value of 3 to 6, and chroma of 1, or they are neutral in hue and have value of 4 to 6. They have few to many mottles in shades of brown. The texture is silt loam, loam, or silty clay loam. Reaction ranges from neutral to strongly alkaline.

Bancker Series

The Bancker series consists of very poorly drained, very slowly permeable soils that formed in very fluid clayey coastal alluvium and organic sediments. These soils are in brackish coastal marshes. Slopes are less than 1 percent.

Soils of the Bancker series are very fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Bancker soils commonly are near Clovelly, Creole, Mermentau, and Scatlake soils. Clovelly, Creole, and Scatlake soils are in landscape positions similar to those of the Bancker soils. Clovelly soils are organic. Creole soils have slightly firm upper layers. Scatlake soils are more saline than the Bancker soils. Mermentau soils are slightly higher on the landscape than the Bancker soils. They have a cambic horizon.

Typical pedon of Bancker muck; about 7.0 miles southeast of Pecan Island, 300 feet west of Highway 3147, about 0.5 mile south of a drawbridge, NE¼SE¼ sec. 35, T. 16 S., R. 1 E.

Oa1—0 to 4 inches; very dark grayish brown (10YR 3/2) muck; massive; about 40 percent fiber, 5 percent rubbed; very fluid (flows easily between fingers when squeezed, leaving only roots and fiber in the hand); many fine roots; about 40 percent mineral; very strongly acid; clear smooth boundary.

Oa2—4 to 10 inches; black (10YR 2/1) muck; massive; about 15 percent fiber, less than 5 percent rubbed; about 60 percent mineral; very fluid (flows easily between fingers when squeezed, leaving the hand empty); many fine roots; strongly acid; clear smooth boundary.

Cg1—10 to 22 inches; dark gray (5Y 4/1) clay; few thin (1-inch-thick) strata of black mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); few fine roots; medium acid; clear smooth boundary.

Cg2—22 to 38 inches; dark greenish gray (5GY 4/1) clay; few fine faint olive brown mottles; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); few fine roots; neutral; clear smooth boundary.

Cg3—38 to 50 inches; dark greenish gray (5GY 4/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear smooth boundary.

Cg4—50 to 72 inches; greenish gray (5GY 5/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline.

These soils are continuously saturated with brackish water. Soil salinity ranges from very slightly saline to slightly saline throughout the profile. The electrical conductivity of the saturation extract ranges from 4 to 8 millimhos per centimeter in at least one layer within a depth of 40 inches. All of the mineral horizons above a depth of 60 inches have an n value of 1 or more.

The Oa horizon has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. It is 2 to 15 inches thick. Reaction ranges from very strongly acid to mildly alkaline.

The Ag horizon, if it occurs, has hue of 10YR, 2.5Y, or 5Y, value of 2 to 4, and chroma of 0 to 2, or it is neutral in hue and has value of 2 to 4. The texture is clay, silty clay, or mucky clay. Reaction ranges from strongly acid to mildly alkaline.

The Cg horizon has hue of 5Y, 5GY, or 5BG, value of 4 to 6, and chroma of 1, or it is neutral in hue and has value of 4 to 6. Mottles are in shades of olive or brown. The texture is dominantly clay, silty clay, or mucky clay, but some pedons have thin organic layers. Reaction ranges from medium acid to moderately alkaline.

Barbary Series

The Barbary series consists of very poorly drained, very slowly permeable soils that formed in very fluid clayey alluvium. These soils are in low, broad backswamps on flood plains. They are ponded and flooded most of the time. Slopes are less than 1 percent.

Soils of the Barbary series are very fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Barbary soils commonly are near Allemands, Basile, Fausse, and Larose soils. Allemands soils are in marshes. They are organic. Basile soils are higher on the landscape than the Barbary soils. They are fine-silty. Fausse soils are in landscape positions similar to those of the Barbary soils. They have an n value of 0.7 or less in the 8- to 20-inch section. Larose soils are in marshes and do not contain logs or fragments of wood in the underlying layers.

Typical pedon of Barbary muck; 4.0 miles northeast of Esther, 0.75 foot east of a parish road, Spanish Land Grant sec. 80, T. 14. S., R. 3 E.

Oa—0 to 4 inches; very dark grayish brown (10YR 3/2) muck; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); common fragments of wood; about 60 percent mineral; medium acid; gradual wavy boundary.

A—4 to 10 inches; very dark grayish brown (10YR 3/2) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); many fine and medium roots; few fragments of wood; neutral; clear smooth boundary.

Cg1—10 to 36 inches; dark gray (5Y 4/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); few fragments of wood; neutral; gradual wavy boundary.

Cg2—36 to 60 inches; gray (5Y 5/1) clay; few fine prominent light olive brown (2.5Y 5/4) mottles; massive; slightly fluid (flows with difficulty between fingers when squeezed, leaving a large amount of residue in the hand); few fragments of wood; mildly alkaline.

The n value is more than 0.7 to a depth of 40 inches or more.

The Oa horizon has hue of 10YR, 7.5YR, or 5YR, value of 2 to 4, and chroma of 1 to 3. Reaction ranges from strongly acid to mildly alkaline.

The A horizon has hue of 10YR or 5Y, value of 3 to 5, and chroma of 1 or 2. The texture is mucky clay or clay. Reaction is neutral or mildly alkaline.

The Cg horizon has hue of 10YR, 5Y, 5GY, 5G, or 5BG, value of 4 or 5, and chroma of 1. The texture is clay or mucky clay. Reaction ranges from neutral to moderately alkaline.

Basile Series

The Basile series consists of poorly drained, slowly permeable soils that formed in loamy alluvium of Pleistocene age. These soils are on flood plains on the Gulf Coast Prairies. Slopes are less than 1 percent.

Soils of the Basile series are fine-silty, mixed, thermic Typic Glossaqualfs.

Basile soils commonly are near Acadia, Barbary, and Crowley soils. Acadia soils are on side slopes and are somewhat poorly drained. They have a fine-textured control section. Barbary soils are lower on the landscape than the Basile soils and are very poorly drained. They have an n value that is more than 0.7 in the 10- to 40-inch control section. Crowley soils are higher on the landscape than the Basile soils. They have a fine-textured control section.

Typical pedon of Basile silt loam, frequently flooded; about 5 miles west of Cossinade along Coulee des Iles, 300 feet west of a parish road, NE¼SW¼ sec. 33, T. 11 S., R. 1 E.

A—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; few fine faint dark yellowish brown mottles; weak fine granular structure; friable; many fine and medium roots; strongly acid; clear wavy boundary.

Eg1—6 to 14 inches; gray (10YR 5/1) silt loam; common fine distinct dark yellowish brown (10YR 3/4) mottles; weak medium subangular blocky structure; friable; many fine and medium roots; strongly acid; gradual wavy boundary.

Eg2—14 to 24 inches; gray (10YR 5/1) silt loam; common fine prominent strong brown (7.5YR 5/6) mottles; massive; firm; few fine roots; strongly acid; clear irregular boundary.

B/E—24 to 36 inches; grayish brown (10YR 5/2) silty clay loam (Bt); few medium distinct dark yellowish brown (10YR 4/6) mottles; about 30 percent gray (10YR 5/1) silt loam (tongues of E); moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of peds; medium acid; clear wavy boundary.

Btg—36 to 56 inches; gray (10YR 5/1) silty clay loam; common medium prominent strong brown (7.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; common distinct dark gray clay films on faces of peds; neutral; gradual wavy boundary.

BC—56 to 60 inches; gray (5Y 6/1) silty clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; weak coarse subangular blocky structure; firm; few fine white concretions of calcium carbonate; moderately alkaline.

The thickness of the solum ranges from 40 to 100 inches.

The A horizon is 3 to 6 inches thick. It has value of 4 to 6 and chroma of 1 or 2. Reaction ranges from very strongly acid to neutral.

The Eg horizon is 12 to 24 inches thick. It has value of 5 to 7 and chroma of 1 or 2. Reaction ranges from very strongly acid to slightly acid.

The Btg horizon and the Bt part of the B/E horizon have hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2. The texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to moderately alkaline.

The BC horizon has the same range in colors and textures as the Btg horizon. Reaction ranges from slightly acid to moderately alkaline.

Cheniere Series

The Cheniere series consists of somewhat excessively drained, rapidly permeable soils that formed in shells, shell fragments, and sand beach deposits. These soils are on low ridges generally parallel to the coast along the Gulf of Mexico. Slopes range from 1 to 3 percent.

Soils of the Cheniere series are carbonatic, thermic Typic Udipsamments.

Cheniere soils commonly are near Creole, Hackberry, and Mermentau soils. Creole soils are in marshes near the Cheniere soils. They have a fine-textured control section. Hackberry and Mermentau soils are lower on the landscape than the Cheniere soils. Hackberry soils have a cambic horizon. Mermentau soils have a clayey surface layer.

Typical pedon of Cheniere sandy clay loam, 1 to 3 percent slopes; 1 mile west of Pecan Island school, 43 steps north of Louisiana Highway 82, about 27 steps west of a corral fence, SW¼SE¼ sec. 33, T. 15 S., R. 1 W.

Ap—0 to 5 inches; very dark gray (10YR 3/1) sandy clay loam; weak coarse platy structure parting to weak medium subangular blocky; friable; common fine and medium roots; about 20 percent shell fragments 2 to 30 millimeters in diameter; moderately alkaline; abrupt smooth boundary.

C1—5 to 26 inches; stratified yellowish brown (10YR 5/4) and dark brown (10YR 3/3) sand, loamy sand, and shell fragments; single grained; loose; common fine roots; about 40 percent shell fragments 2 to 40 millimeters in diameter; thin strata having as much as 85 percent shell fragments; moderately alkaline; abrupt smooth boundary.

C2—26 to 63 inches; stratified dark grayish brown (10YR 4/2), yellowish brown (10YR 5/4), and brown (10YR 5/3) sand, loamy fine sand, and shell fragments; single grained; loose; few fine roots; about 45 percent shell fragments 2 to 50 millimeters in diameter; individual strata having 5 to 90 percent shell fragments; moderately alkaline; abrupt smooth boundary.

Reaction ranges from mildly alkaline to strongly alkaline throughout the profile.

The Ap horizon has value of 2 to 4 and chroma of 1 to 3. The content of shell fragments ranges from less than 10 percent to about 40 percent.

Some pedons have an Ab horizon. This horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. It is sand, fine sand, loamy sand, or loamy fine sand. The content of shell fragments ranges from about 10 percent to 40 percent.

The C horizon has value of 2 to 5 and chroma of 2 to 4. It is stratified sand, fine sand, loamy sand, loamy fine sand, and shell fragments. The content of shell fragments ranges from 35 to 85 percent, by volume, in the particle-size control section. The content of shell fragments in individual strata ranges from 2 to 90 percent.

Clovelly Series

The Clovelly series consists of very poorly drained, very slowly permeable, organic soils that formed in moderately thick accumulations of herbaceous plant material overlying very fluid clayey alluvium. These soils are in brackish coastal marshes. They are continuously ponded and flooded. Slopes are less than 1 percent.

Soils of the Clovelly series are clayey, montmorillonitic, euic, thermic Terric Medisaprists.

Clovelly soils commonly are near Allemands, Bancker, Lafitte, and Scatlake soils and Aquents. Allemands soils are in freshwater marshes. They are not so saline as the Clovelly soils. Bancker, Lafitte, and Scatlake soils are in landscape positions similar to those of the Clovelly soils. Bancker and Scatlake soils are mineral. Lafitte soils have more than 51 inches of organic material. Aquents are slightly higher on the landscape than the Clovelly soils. They consist of soil material that was hydraulically excavated during the construction and maintenance of waterways.

Typical pedon of Clovelly muck; about 4 miles south of Intracoastal City, 1 mile west of the intersection of Belle Isle Bayou and Little Vermilion Bay, 2 miles east of Freshwater Bayou Canal, NW¼SE¼ sec. 24, T. 15 S., R. 2 E.

Oa1—0 to 10 inches; dark grayish brown (10YR 4/2) muck; massive; about 30 percent fiber, 10 percent rubbed; about 60 percent mineral; many medium and fine roots; very fluid (flows easily between fingers when squeezed, leaving only fiber and roots in the hand); slightly acid; clear smooth boundary.

Oa2—10 to 28 inches; very dark grayish brown (10YR 3/2) muck; massive; about 60 percent fiber, 10 percent rubbed; about 50 percent mineral; few medium and fine roots; very fluid (flows easily between fingers when squeezed, leaving the hand empty); neutral; gradual smooth boundary.

Oa3—28 to 40 inches; black (10YR 2/1) muck; massive; about 10 percent fiber, 3 percent rubbed; about 65 percent mineral; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear smooth boundary.

Agb—40 to 52 inches; black (10YR 2/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); common streaks of dark gray (N 4/0) clay; moderately alkaline; clear smooth boundary.

Cg—52 to 80 inches; dark gray (N 4/0) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline.

The thickness of the organic horizons ranges from 16 to 51 inches. Reaction in the organic layers ranges from slightly acid to moderately alkaline. Reaction in the mineral layers is mildly alkaline or moderately alkaline. Salinity, expressed as electrical conductivity of the saturation extract, ranges from 4 to 8 millimhos per centimeter in at least one layer within a depth of 40 inches.

The Oa horizon has hue of 10YR or 7.5YR, value of 2 to 4, and chroma of 0 to 2, or it is neutral in hue and has value of 2 to 4. Mineral content ranges from 40 to 70 percent.

The Agb horizon has hue of 10YR or 5Y, value of 2 to 4, and chroma of 1 or 2. The texture is mucky clay, clay, or silty clay. The n value ranges from 0.7 to more than 1.0.

The Cg horizon has hue of 10YR, 5Y, 5BG, 5GY, or 5G, value of 4 to 6, and chroma of 1, or it is neutral in hue and has value of 4 to 6. The texture is mucky clay, clay, or silty clay. The n value to a depth of 60 inches or more ranges from 0.7 to more than 1.0.

Coteau Series

The Coteau series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loess. These soils are on slightly convex ridgetops and side slopes in the uplands. Slopes range from 0 to 3 percent.

Soils of the Coteau series are fine-silty, mixed, thermic Glossaquic Hapludalfs.

Coteau soils commonly are near Frost, Memphis, and Patoutville soils. Frost soils are lower on the landscape than the Coteau soils and are poorly drained. They have a subsurface layer that extends into the subsoil. Memphis soils are slightly higher on the landscape than the Coteau soils and are well drained. They do not have albic material in the subsoil. Patoutville soils are slightly lower on the landscape than the Coteau soils. They have an aquic moisture regime.

Typical pedon of Coteau silt loam, 1 to 3 percent slopes; about 3.0 miles south of Milton, 500 feet north of Louisiana Highway 83, about 0.75 mile east of the Vermilion River, Spanish Land Grant sec. 52, T. 11 S., R. 4 E.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

Bt—6 to 17 inches; dark brown (7.5YR 4/4) silty clay loam; few fine distinct light brownish gray (10YR 6/2) mottles; moderate medium subangular blocky structure; firm; common fine roots; many distinct clay films on all faces of peds; very strongly acid; clear irregular boundary.

B/E—17 to 32 inches; dark yellowish brown (10YR 4/4) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; few faint clay films on faces of some peds; about 30 percent interfingers of light brownish gray (10YR 6/2) and pale brown (10YR 6/3) silt loam (E) about 0.5 to 1.0 centimeter thick; many medium dark brown, firm and brittle areas having black interiors; strongly acid; clear irregular boundary.

B't—32 to 42 inches; mottled dark brown (7.5YR 4/4) (60 percent) and light brownish gray (10YR 6/2) (40 percent) silty clay loam; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; few faint clay films on faces of some peds; strongly acid; clear wavy boundary.

BC—42 to 60 inches; dark brown (7.5YR 4/4) silt loam; weak coarse prismatic structure; friable; few faint clay films on faces of some peds; few spots of light brownish gray (10YR 6/2) material along some pores; strongly acid.

The thickness of the solum ranges from 48 to 72 inches.

The Ap horizon has value of 4 or 5 and chroma of 1 to 3. It is 5 to 9 inches thick. Reaction and ranges from very strongly acid to slightly acid.

The Bt and B't horizons have hue of 10YR or 7.5YR and value and chroma of 3 or 4. The E part of the B/E horizon has hue of 2.5Y, value of 6, and chroma of 2 or has hue of 10YR, value of 6, and chroma of 2 or 3. Few to many mottles are in shades of gray or brown. The texture of the Bt and B't horizons is silt loam or silty clay loam. Reaction ranges from very strongly acid to slightly acid.

The BC horizon has the same range in colors as the Bt horizon. Reaction ranges from strongly acid to neutral.

Creole Series

The Creole series consists of very poorly drained, very slowly permeable soils that formed in clayey coastal alluvium. These soils have slightly fluid clayey layers over very fluid clays. They are in broad, coastal brackish marshes. Slopes are less than 1 percent.

Soils of the Creole series are fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Creole soils commonly are near Bancker, Hackberry, Larose, Mermentau, and Scatlake soils. Bancker, Larose, and Scatlake soils are in landscape positions similar to those of the Creole soils. They are very fluid and clayey throughout. Hackberry soils are on ridges. They have a sandy control section. Mermentau soils are higher on the landscape than the Creole soils. They have clayey over loamy material in the control section.

Typical pedon of Creole muck; about 8 miles southeast of Pecan Island, 600 feet east of Louisiana Highway 3147, about 2 miles south of a bridge, sec. 11, T. 17 S., R. 1 E.

Oa—0 to 7 inches; very dark grayish brown (10YR 3/2) muck; massive; very fluid (flows easily between fingers when squeezed, leaving only live roots in the hand); about 30 percent fiber, 10 percent rubbed; many fine and medium roots; very strongly acid; abrupt smooth boundary.

A—7 to 14 inches; black (10YR 2/1) mucky clay; massive; slightly fluid (flows with difficulty between fingers when squeezed, leaving a large amount of residue in the hand); many fine roots; medium acid; clear smooth boundary.

Cg1—14 to 24 inches; greenish gray (5GY 5/1) clay; common medium prominent dark brown (7.5YR 4/4) mottles; massive; slightly fluid (flows with difficulty between fingers when squeezed, leaving a large amount of residue in the hand); common fine roots; few very fine fragments of shell; few lenses and pockets of sand in the lower part; neutral; clear smooth boundary.

Cg2—24 to 38 inches; greenish gray (5GY 5/1) clay; common medium prominent dark brown (7.5YR 4/4) mottles; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); few fine roots; mildly alkaline; clear smooth boundary.

Cg3—38 to 64 inches; greenish gray (5GY 5/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); few fine roots; moderately alkaline.

The n value generally ranges from 0.7 to 1.0 at a depth of 8 to 40 inches, except in thin surface layers. Below a depth of 40 inches, the n value is 1 or more. The electrical conductivity of the saturation extract ranges from 4 to 16 millimhos per centimeter in at least one layer within a depth of 40 inches.

The Oa horizon is 2 to 8 inches thick. It has value of 2 or 3 and chroma of 1 or 2. Reaction ranges from very strongly acid to mildly alkaline.

The A horizon has hue of 10YR to 5Y, value of 2 to 4, and chroma of 1 or less, or it is neutral in hue and has value of 3 or 4. The texture is silty clay, clay, or mucky clay. Reaction ranges from very strongly acid to mildly alkaline.

The Cg horizon has hue of 10YR to 5BG, value of 4 to 6, and chroma of 1, or it is neutral in hue and has value of 4 or 5. The number of mottles in shades of olive brown or yellowish brown ranges from none to many. The texture is clay, silty clay, or clay loam. Reaction ranges from slightly acid to moderately alkaline in the upper part of the horizon and from neutral to moderately alkaline in the lower part. Some pedons have a few thin strata and lenses of loamy very fine sand.

Crowley Series

The Crowley series consists of somewhat poorly drained, very slowly permeable soils that formed in loamy and clayey alluvium of Pleistocene age. These soils are on broad flats and slightly convex ridges in the uplands and on the Gulf Coast Prairies. Slopes range from 0 to 3 percent.

Soils of the Crowley series are fine, montmorillonitic, thermic Typic Albaqualfs.

Crowley soils commonly are near Acadia, Basile, Frost, Kaplan, Mowata, and Patoutville soils. Acadia and Kaplan soils are in landscape positions similar to those of the Crowley soils. They do not have an abrupt textural change between the surface layer or subsurface layer and the subsoil. Basile soils are along drainageways and are poorly drained. They are fine-silty. Frost and Mowata soils are lower on the landscape than the Crowley soils and are poorly drained. They have albic material that extends into the argillic horizon. Patoutville soils are in the higher landscape positions. They are fine-silty.

Typical pedon of Crowley silt loam, 0 to 1 percent slopes; about 0.5 mile northeast of Lelieux, 0.25 mile east of Highway 13, about 650 feet north of a parish road, SE¼SW¼ sec. 22, T. 11 S., R. 1 E.

Ap—0 to 9 inches; dark grayish brown (10YR 4/2) silt loam; weak fine and medium granular structure; firm; many fine roots; dark reddish brown oxidation stains on faces of some peds; few fine black concretions of iron and manganese oxide; strongly acid; abrupt smooth boundary.

Eg—9 to 16 inches; grayish brown (10YR 5/2) silt loam; many medium faint gray (10YR 5/1) mottles; massive; firm; many fine black concretions of iron and manganese oxide; medium acid; abrupt wavy boundary.

Btg1—16 to 26 inches; gray (10YR 5/1) silty clay; common fine prominent red (2.5YR 5/6) and few fine prominent yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure parting to moderate fine blocky; firm; few fine roots; common fine black concretions of iron and manganese oxide; common distinct clay films on faces of peds; continuous dark gray (10YR 4/1) coatings on primary and secondary faces of peds; strongly acid; gradual wavy boundary.

Btg2—26 to 42 inches; gray (10YR 5/1) silty clay loam; common medium distinct yellowish brown (10YR 5/4) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few fine black concretions of iron and manganese oxide; common distinct clay films on faces of peds; slightly acid; gradual wavy boundary.

BCg—42 to 60 inches; gray (10YR 6/1) silty clay loam; many fine and medium prominent light olive brown (2.5Y 5/4) mottles; weak coarse subangular blocky structure; firm; few faint clay films on faces of peds; few fine black concretions of iron and manganese oxide; neutral.

The thickness of the solum ranges from 40 to 75 inches.

The Ap horizon has value of 4 or 5 and chroma of 1 or 2. Reaction ranges from very strongly acid to moderately alkaline.

The Eg horizon has value of 5 or 6 and chroma of 1 or 2. Reaction ranges from very strongly acid to moderately alkaline.

The Btg horizon has value of 4 to 6 and chroma of 1 or 2. It has few to many mottles in shades of red or brown. The faces of peds are very dark gray or dark gray in the upper part of the horizon. The texture is silty clay or silty clay loam in the upper part of the horizon and ranges to clay loam in the lower part. Reaction ranges from very strongly acid to neutral.

The BCg horizon has hue of 10YR or 5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many mottles in shades of brown or red. The texture is dominantly silty clay loam, clay loam, or silty clay, but it is loam in the lower part of the horizon in some pedons. Reaction ranges from medium acid to moderately alkaline.

Delcomb Series

The Delcomb series consists of very poorly drained, moderately slowly permeable soils that formed in herbaceous plant remains over mixed loess and silty alluvium. These soils are in brackish coastal marshes. Slopes are less than 1 percent.

Soils of the Delcomb series are loamy, mixed, euic, thermic Terric Medisaprists.

Delcomb soils commonly are near Andry, Clovelly, and Lafitte soils. Andry soils are in the higher landscape positions. They are mineral. Clovelly and Lafitte soils are in landscape positions similar to those of the Delcomb soils. Clovelly soils have clayey underlying material. Lafitte soils have accumulations of organic material more than 51 inches thick.

Typical pedon of Delcomb muck; about 9.0 miles south of Erath, 1.75 miles north of the Intracoastal Waterway, 0.25 mile north of Landry Canal, 0.75 mile east of Boston Canal, T. 14. S., R. 4 E.

Oa1—0 to 10 inches; very dark grayish brown (10YR 3/2) muck; about 60 percent fiber, 15 percent rubbed; massive; many medium and fine live roots; about 50 percent mineral; slightly acid; gradual smooth boundary.

Oa2—10 to 26 inches; black (10YR 2/1) muck; about 50 percent fiber, 5 percent rubbed; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); common fine roots; about 40 percent mineral; neutral; clear smooth boundary.

Ag1—26 to 34 inches; very dark gray (N 3/0) mucky silty clay loam; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); mildly alkaline; gradual wavy boundary.

Ag2—34 to 50 inches; black (N 2/0) mucky silty clay loam; massive; slightly fluid (flows with difficulty between fingers when squeezed, leaving residue in the hand); moderately alkaline; gradual smooth boundary.

Cg—50 to 60 inches; gray (5Y 5/1) silty clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; massive; firm; plastic and sticky; moderately alkaline.

The control section is about 51 inches thick. The depth to loamy material ranges from 18 to 50 inches.

The Oa horizon has value of 2 to 4 and chroma of 1 or 2, or it is neutral in hue and has value of 2. Reaction ranges from medium acid to mildly alkaline.

The Ag horizon has hue of 10YR or 5Y, value of 2 or 3, and chroma of 1 or 2, or it is neutral in hue and has value of 2 or 3. The texture is mucky silt loam, mucky silty clay loam, silt loam, or silty clay loam. Reaction ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 10YR or 5Y, value of 4 to 6, and chroma of 1. It is silt loam or silty clay loam. Reaction ranges from neutral to moderately alkaline.

Dundee Series

The Dundee series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loamy alluvium. These soils are on natural levees that border former channels of the Mississippi River and its tributaries. Slopes are less than 1 percent.

Soils of the Dundee series are fine-silty, mixed, thermic Aeric Ochraqualfs.

Dundee soils commonly are near Coteau and Patoutville soils. Patoutville soils are less than 10 percent sand. They are slightly acid to moderately alkaline in the lower part of the B horizon. Coteau soils are higher on the landscape than the Dundee soils. They are less than 10 percent sand.

Typical pedon of Dundee very fine sandy loam; about 1.1 miles east of Bancker, 125 feet north of Louisiana Highway 690, Spanish Land Grant sec. 46, T. 13 S., R. 4 E.

Ap—0 to 7 inches; grayish brown (10YR 5/2) very fine sandy loam; weak fine granular structure; very friable; many fine and medium roots; strongly acid; clear smooth boundary.

Bt—7 to 15 inches; grayish brown (10YR 5/2) silty clay loam; few medium prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; many distinct clay films on faces of peds; thin light gray (10YR 7/1) silt coatings on faces of some peds; very strongly acid; gradual wavy boundary.

Btg—15 to 28 inches; grayish brown (2.5Y 5/2) clay loam; few medium prominent strong brown (7.5YR 5/8) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on faces of some peds; few fine prominent olive stains in root channels; very strongly acid; gradual wavy boundary.

BCg—28 to 38 inches; light brownish gray (10YR 6/2) sandy clay loam; few medium prominent strong brown (7.5YR 5/8) mottles; weak fine subangular blocky structure; friable; few fine roots; few faint clay films on faces of some peds; few fine prominent olive stains in root channels; very strongly acid; gradual wavy boundary.

2Cg1—38 to 56 inches; light brownish gray (10YR 6/2) very fine sandy loam; few medium prominent yellowish brown (10YR 5/8) mottles; massive; very friable; few fine roots; neutral; clear smooth boundary.

2Cg2—56 to 60 inches; gray (10YR 5/1) silt loam; common medium prominent reddish brown (5YR 4/4) mottles; massive; friable; neutral.

The thickness of the solum ranges from 24 to 50 inches.

The Ap horizon is 4 to 8 inches thick. It has value of 4 or 5 and chroma of 2. Reaction ranges from very strongly acid to medium acid.

The Bt and Btg horizons have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2. The texture is silt loam, loam, clay loam, or silty clay loam. Reaction ranges from very strongly acid to medium acid. The horizons have few to many fine to coarse mottles in shades of brown or gray.

The BCg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 2, or it has hue of 10YR, value of 6, and chroma of 1 or 2. Reaction ranges from very strongly acid to medium acid. The texture is loam, sandy clay loam, or silt loam.

The 2Cg horizon has value of 5 or 6 and chroma of 1 or 2. It is very fine sandy loam, loam, silt loam, or silty clay loam. Reaction ranges from very strongly acid to neutral.

Fausse Series

The Fausse series consists of very poorly drained, very slowly permeable soils that formed in clayey alluvium. These soils are in low, ponded backswamps on flood plains. Slopes are less than 1 percent.

Soils of the Fausse series are very fine, montmorillonitic, nonacid, thermic Typic Fluvaquents.

Fausse soils commonly are near Barbary soils. Barbary soils are lower on the landscape than the Fausse soils. They have an n value of 0.7 or more in the 8- to 20-inch section.

Typical pedon of Fausse clay; about 0.5 mile east of Bancker, 0.25 mile south of Louisiana Highway 690, about 350 feet east of a shell oil field road, Spanish Land Grant sec. 55, T. 13 S., R. 3 E.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) clay; common fine distinct dark yellowish brown (10YR 4/4) mottles; moderate medium angular blocky structure; firm; common fine and medium roots; slightly acid; gradual wavy boundary.

Bg1—4 to 18 inches; dark gray (10YR 4/1) clay; common fine prominent dark yellowish brown (10YR 4/6) mottles; weak medium angular blocky structure;

very firm; very sticky; common fine and medium roots; neutral; gradual wavy boundary.

Bg2—18 to 30 inches; dark gray (5Y 4/1) clay; common fine prominent dark yellowish brown (10YR 4/6) mottles; weak medium angular blocky structure; very firm; very sticky; few fine roots; neutral; gradual wavy boundary.

Bg3—30 to 44 inches; gray (10YR 5/1) clay; few medium prominent strong brown (7.5YR 5/8) and few fine faint greenish gray (5G 5/1) mottles; weak fine angular blocky structure; massive; very firm; very sticky; neutral; gradual wavy boundary.

Cg—44 to 60 inches; gray (5Y 5/1) clay; common medium prominent dark yellowish brown (10YR 4/4) mottles; massive; very firm; very sticky; neutral.

The thickness of the solum ranges from 25 to 50 inches. The n value of the solum in the 8- to 20-inch section is 0.7 or less. Cracks do not form within a depth of 20 inches at any time. COLE ranges from 0.09 to 0.18 in all mineral layers.

The A horizon is 2 to 10 inches thick. It has value of 3 or 4 and chroma of 1 or 2. Reaction ranges from medium acid to neutral.

The Bg horizon has hue of 10YR or 5Y, value of 4 or 5, and chroma of 1. The number of mottles in shades of brown ranges from none to common. Reaction ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 5Y or 5GY, value of 4 or 5, and chroma of 1, or it is neutral in hue and has value of 4 or 5. The texture is clay, silty clay, or silty clay loam. Reaction ranges from neutral to moderately alkaline.

Frost Series

The Frost series consists of poorly drained, slowly permeable soils that formed in loess or silty alluvium of Pleistocene age. These soils are on broad flats and along drainageways in the uplands. Slopes are less than 1 percent.

Soils of the Frost series are fine-silty, mixed, thermic Typic Glossaqualfs.

Frost soils commonly are near Coteau, Crowley, Jeanerette, Judice, Mowata, and Patoutville soils. Coteau, Crowley, and Patoutville soils are somewhat poorly drained and are higher on the landscape than the Frost soils. Coteau soils have a udic moisture regime. Crowley soils have a fine-textured control section. Patoutville soils do not have an albic horizon that extends into the argillic horizon. Jeanerette soils are somewhat poorly drained and are slightly higher on the landscape than the Frost soils. They have a mollic epipedon. Judice and Mowata soils are in landscape positions similar to those of the Frost soils. They have a fine-textured control section.

Typical pedon of Frost silt loam; about 1.0 mile southeast of Maurice, 0.5 mile south of Louisiana Highway 92, about 150 feet west of a parish road, SE¼SE¼ sec. 12, T. 11 S., R. 3 E.

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam; few fine distinct dark yellowish brown (10YR 4/4) mottles; weak fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

E—6 to 15 inches; gray (10YR 5/1) silt loam; massive; friable; many fine roots; common fine prominent strong brown stains in root channels; very strongly acid; clear irregular boundary.

B/E—15 to 30 inches; gray (10YR 5/1) silty clay loam (Bt); many fine prominent yellowish brown (10YR 5/6) mottles; weak medium prismatic structure; firm; common fine roots; tongues of dark gray silt loam (E) extending to base of the horizon; common distinct dark gray and very dark gray clay films on faces of most peds; vertical faces of peds coated with silt; very strongly acid; clear wavy boundary.

Btg1—30 to 42 inches; gray (10YR 5/1) silty clay loam; moderate medium prismatic structure parting to moderate medium subangular blocky; common fine black concretions of iron and manganese oxide; common prominent strong brown stains in root channels; common distinct dark gray clay films; very strongly acid; gradual wavy boundary.

Btg2—42 to 64 inches; gray (5Y 5/1) silty clay loam; common fine prominent strong brown (7.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; common faint clay films on vertical faces of peds; common fine black concretions of iron and manganese oxide; few thin silt coatings on vertical faces of some peds; strongly acid.

The thickness of the solum ranges from 48 to 72 inches.

The Ap horizon is 4 to 6 inches thick. It has value of 4 or 5 and chroma of 1 or 2. Reaction ranges from very strongly acid to slightly acid.

The E horizon is 8 to 20 inches thick. It has value of 4 to 6 and chroma of 1 or 2. Reaction ranges from very strongly acid to slightly acid.

The upper part of the Btg horizon has hue of 10YR, 5Y, or 2.5Y, value of 5 or 6, and chroma of 1 or 2. The number of mottles in shades of brown or gray ranges from none to many. The texture is silt loam or silty clay loam. Reaction ranges from very strongly acid to medium acid.

The lower part of the Btg horizon has the same range in colors and textures as the upper part. Reaction ranges from strongly acid to neutral.

Frozard Series

The Frozard series consists of somewhat poorly drained, slowly permeable soils that formed in loess. These soils are on broad, low ridges in the uplands. Slopes are less than 1 percent.

Soils of the Frozard series are fine-silty, mixed, thermic Aeric Ochraqualfs.

Frozard soils commonly are near Frost, Jeanerette, and Patoutville soils. Frost and Jeanerette soils are slightly lower on the landscape than the Frozard soils. Jeanerette soils have a mollic epipedon. Frost soils are poorly drained. They have an albic horizon that extends into the subsoil. Patoutville soils are in landscape positions similar to those of the Frozard soils. They have fewer concentrations of sodium in the upper part of the Bt horizon than the Frozard soils.

Typical pedon of Frozard silt loam; about 1.0 mile east of Erath, 0.5 mile south of Louisiana Highway 14, about 1,000 feet east of a parish road, NE¼SW¼ sec. 36, T. 12. S., R. 4 E.

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam; weak fine granular structure; very friable; common fine roots; common fine black concretions of iron and manganese oxide; strongly acid; abrupt smooth boundary.

Bt—7 to 12 inches; dark gray (10YR 4/1) silty clay loam; many fine distinct dark yellowish brown (10YR 4/4) mottles; strong medium subangular blocky structure; firm; few fine roots; common fine black concretions of iron and manganese oxide; many distinct clay films on faces of peds; thin patchy silt coatings on vertical faces of peds; neutral; gradual wavy boundary.

Btk—12 to 23 inches; dark grayish brown (10YR 4/2) silty clay loam; many medium distinct yellowish brown (10YR 5/6) and common fine prominent yellowish brown (10YR 5/8) mottles; strong medium subangular blocky structure; many distinct dark gray clay films on faces of peds; common fine black concretions of iron and manganese oxide; few medium white concretions of calcium carbonate; moderately alkaline; gradual wavy boundary.

Btg1—23 to 36 inches; grayish brown (10YR 5/2) silty clay loam; common medium prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; many distinct dark gray and gray clay films on faces of peds; many medium black concretions of iron and manganese oxide; moderately alkaline; gradual wavy boundary.

Btg2—36 to 58 inches; grayish brown (10YR 5/2) silt loam; common medium prominent yellowish brown (10YR 5/8) mottles; moderate medium prismatic structure; firm; few distinct clay films in pores and on faces of some peds; thick silt coatings on vertical faces of peds; common coarse black concretions of iron and manganese oxide; neutral; gradual wavy boundary.

BC—58 to 80 inches; yellowish brown (10YR 5/8) silt loam; common medium prominent gray (10YR 6/1) mottles; massive; firm; few medium black concretions of iron and manganese oxide; neutral.

The Ap horizon has value of 4 or 5 and chroma of 1 to 3. Reaction ranges from strongly acid to neutral.

The Bt, Btk, and Btg horizons have value of 4 or 5 and chroma of 2 to 4. They have common or many mottles in shades of brown or gray. Coatings on peds have value of 2 or 3 and chroma of 1 or 2. The texture is silty clay loam or silt loam. The percentage of exchangeable sodium averages more than 5 and less than 15 in the upper 16 inches of the Bt horizon. Reaction in the Bt horizon ranges from neutral to strongly alkaline.

The BC horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. It is silty clay loam or silt loam. It has common or many mottles in shades of brown or gray. Reaction ranges from neutral to strongly alkaline.

Ged Series

The Ged series consists of very poorly drained, very slowly permeable soils that formed in recent, very fluid clayey alluvium over firm clayey alluvium of Pleistocene age. These soils are on the landward side of freshwater marshes that have encroached on low coastal prairies. Slopes are less than 1 percent.

Soils of the Ged series are very fine, mixed, thermic Typic Ochraqualfs.

Ged soils commonly are near Allemands, Gueydan, Judice, and Midland soils. Allemands soils are in landscape positions similar to those of the Ged soils. They are organic. Gueydan soils are in former marshes and are artificially drained and irreversibly cracked. Judice and Midland soils are poorly drained and are higher on the landscape than the Ged soils. Judice soils have a mollic epipedon. Midland soils have a fine-textured control section.

Typical pedon of Ged clay; about 5.0 miles south of Forked Island, 1.25 miles west of Warren Canal, 750 feet east of Louisiana Highway 82, NE¼SW¼ sec. 35, T. 14 S., R. 1 E.

A—0 to 8 inches; very dark gray (10YR 3/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving a small amount of residue in the hand); many fine roots; medium acid; abrupt smooth boundary.

2A—8 to 14 inches; dark gray (10YR 4/1) clay; massive; slightly fluid and sticky (flows with difficulty between fingers when squeezed, leaving a large amount of residue in the hand); common fine roots; medium acid; clear wavy boundary.

2Btg1—14 to 26 inches; gray (10YR 5/1) clay; many medium distinct dark yellowish brown (10YR 4/4) mottles; moderate medium and coarse subangular blocky structure; firm; plastic and sticky; few faint clay films on faces of some peds; slightly acid; gradual wavy boundary.

2Btg2—26 to 34 inches; gray (10YR 6/1) clay; many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; firm; plastic and sticky; common distinct clay films on faces of peds; neutral; gradual wavy boundary.

2Btkg—34 to 48 inches; gray (5Y 5/1) clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium and coarse subangular blocky structure; firm; plastic and sticky; common distinct clay films on faces of peds; common medium white concretions of calcium carbonate; moderately alkaline; gradual wavy boundary.

2Ckg—48 to 60 inches; gray (5Y 5/1) clay; common medium prominent dark yellowish brown (10YR 4/4) mottles; massive; firm; plastic and sticky; few medium white concretions of calcium carbonate; moderately alkaline.

The thickness of the solum ranges from 45 to 80 inches. The mineral surface layers that have an n value of more than 0.7 range from 4 to 18 inches in thickness.

The A horizon has hue of 10YR or 5Y, value of 2 to 4, and chroma of 1 or 2. Reaction ranges from very strongly acid to mildly alkaline. The n value ranges from 0.7 to 2.0.

The 2A horizon has the same range in colors and reaction as the A horizon. The texture is silty clay, clay, or mucky clay. The n value ranges from 0.1 to 0.6.

The 2Bt and 2Ckg horizons have hue of 10YR to 5GY or are neutral in hue. They have value of 4 to 6 and chroma of 0 or 1. Mottles range from few to many. The texture is silty clay or clay. Reaction ranges from slightly acid to moderately alkaline.

Gueydan Series

The Gueydan series consists of poorly drained, very slowly permeable, mineral soils that formed in organic material and fluid clayey alluvium that shrank and consolidated as the result of artificial drainage. These soils are in former freshwater coastal marshes. They are protected from flooding by a system of levees and drained with pumps. Slopes are less than 1 percent.

Soils of the Gueydan series are fine, montmorillonitic, nonacid, thermic, cracked Typic Fluvaquents.

Gueydan soils commonly are near Allemands, Ged, Judice, and Midland soils. Allemands and Ged soils are in marshes near the Gueydan soils and are very poorly drained. Allemands soils are organic. Ged soils have an argillic horizon. Judice and Midland soils are higher on the landscape than the Gueydan soils. Judice soils have a mollic epipedon. Midland soils have an argillic horizon.

Typical pedon of Gueydan muck; about 7.0 miles south of Gueydan, 1.5 miles east of Louisiana Highway 91, about 500 feet northwest of a levee, T. 13 S., R. 1 W.

Op—0 to 6 inches; black (10YR 2/1) muck; moderate fine and medium granular structure; friable; very strongly acid; abrupt smooth boundary.

Bg—6 to 12 inches; grayish brown (10YR 5/2) silty clay; moderate medium subangular blocky structure; firm; plastic; common fine roots; common prominent streaks of strong brown (7.5YR 5/8) material along root channels and as coatings on faces of peds; common vertical cracks that are 2 to 4 millimeters wide and filled with black muck; strongly acid; clear wavy boundary.

Byg1—12 to 19 inches; dark gray (10YR 4/1) clay; weak coarse subangular blocky structure; firm; plastic and sticky; common prominent streaks of strong brown (7.5YR 5/8) material along root channels and as coatings on faces of peds; few medium pockets of white crystals (gypsum); slightly acid; clear wavy boundary.

Byg2—19 to 36 inches; gray (5Y 5/1) clay; weak coarse subangular blocky structure; firm; plastic and sticky; common prominent streaks of strong brown (7.5YR 5/8) material along root channels and as coatings on faces of peds; few medium pockets of white crystals (gypsum); few medium brown concretions; neutral; gradual wavy boundary.

BCg—36 to 46 inches; gray (5Y 5/1) clay; few medium distinct light olive brown (2.5Y 5/4) mottles; massive; firm; sticky and plastic; few prominent streaks of strong brown (7.5YR 5/8) material on surfaces of cracks; polygonal network of cracks ¼ to ½ inch wide; common fine and medium brown concretions; mildly alkaline; clear wavy boundary.

Ab—46 to 60 inches; dark gray (N 4/0) silty clay; common medium prominent light olive brown (2.5Y 5/4) mottles; massive; firm; plastic and sticky; mildly alkaline; clear wavy boundary.

Bkgb—60 to 80 inches; gray (5Y 5/1) clay; common medium prominent olive (5Y 5/6) mottles; massive; firm; plastic and sticky; common medium white concretions of calcium carbonate; moderately alkaline.

The thickness of the solum ranges from 24 to 80 inches or more.

The Op horizon has value of 2 or 3 and chroma of 1 or 2. Reaction ranges from extremely acid to medium acid.

Some pedons have an A horizon. This horizon has hue of 10YR, value of 2 to 4, and chroma of 1 or 2. Where the horizon has value of 2 or 3, it is less than 6 inches thick. The texture is mucky clay, silty clay, or clay. Reaction ranges from extremely acid to medium acid.

The Bg, Byg, and BCg horizons have hue of 10YR, 5Y, 5BG, 5GY, or 5G, value of 3 to 5, and chroma of 1 or 2, or they are neutral in hue and have value of 4 to 6. The texture is clay or silty clay. Reaction ranges from extremely acid to mildly alkaline.

The Ab and Bkgb horizons have the same range in colors as the B and BC horizons. The texture is clay, silty clay, or silty clay loam. Reaction is mildly alkaline or moderately alkaline.

Hackberry Series

The Hackberry series consists of somewhat poorly drained, rapidly permeable soils that formed in sandy and loamy beach deposits. These soils are on the toe slopes of low ridges that are generally parallel to the coast of the Gulf of Mexico. Slopes range from 0 to 3 percent.

Soils of the Hackberry series are sandy, mixed, nonacid, thermic Aeric Haplaquepts.

Hackberry soils commonly are near Bancker, Cheniere, Creole, and Mermentau soils. Bancker and Creole soils are in marshes near the Hackberry soils. They have clayey underlying material. Cheniere soils are in the higher landscape positions and are somewhat excessively drained. They have a carbonatic control section. Mermentau soils are in the lower landscape positions and are poorly drained. They have clayey over loamy material in the control section.

Typical pedon of Hackberry fine sandy loam, in an area of Hackberry-Mermentau complex, gently undulating; about 4 miles southeast of Pecan Island, 1,200 feet north of Louisiana Highway 3417, northwest of Columbia Gulf pumping plant, NE¼SE¼ sec. 9, T. 16 S., R. 1 E.

A1—0 to 3 inches; very dark gray (10YR 3/1) fine sandy loam; weak coarse subangular blocky structure parting to weak medium granular; friable; many fine and medium and few coarse roots; medium acid; clear smooth boundary.

A2—3 to 8 inches; dark grayish brown (10YR 4/2) fine sandy loam; weak medium subangular blocky structure; friable; many fine and medium and common coarse roots; medium acid; gradual wavy boundary.

Bw—8 to 19 inches; brown (10YR 5/3) loamy fine sand; common medium faint grayish brown (10YR 5/2), common medium distinct gray (10YR 5/1), and few medium faint dark yellowish brown (10YR 4/4) mottles; very weak coarse subangular blocky structure; very friable; common fine and medium and few coarse roots; very dark gray coatings on walls of root channels; medium acid; gradual wavy boundary.

Bg1—19 to 24 inches; grayish brown (10YR 5/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/4) and dark yellowish brown (10YR 4/4) and common medium faint gray (10YR 5/1) mottles; weak medium subangular blocky structure; friable; common fine and medium roots; medium acid; abrupt smooth boundary.

Bg2—24 to 31 inches; brown (10YR 5/3) fine sand; few medium faint dark yellowish brown (10YR 4/4) and few medium distinct gray (10YR 5/1) mottles; massive; friable; few fine and medium roots; few fine and medium black stains and accumulations of manganese oxide; 40 percent soft shells (crushable between thumbnail and forefinger); few hard shells 1 inch in diameter in a thin layer at top of the horizon; mildly alkaline; abrupt smooth boundary.

C1—31 to 42 inches; brown (10YR 5/3) and grayish brown (10YR 5/2) sand; massive; loose; moderately alkaline; abrupt smooth boundary.

C2—42 to 48 inches; brown (10YR 5/3) and grayish brown (10YR 5/2) sand; massive; loose; common coarse black, weakly cemented accumulations of iron and manganese oxide at base of the horizon; 70 percent partially divided soft shells; 20 percent durable oyster and clam shells; moderately alkaline; abrupt smooth boundary.

C3—48 to 60 inches; dark greenish gray (5G 4/1) and olive (5Y 5/3) sand; massive; loose; 30 percent partially divided soft shells; moderately alkaline.

The thickness of the solum dominantly ranges from 20 to 35 inches, but it can range from 14 to 44 inches. The content of shell fragments varies throughout the profile; it ranges from 2 to 15 percent, by weighted average, in the 10- to 40-inch control section.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 3 or 4, and chroma of 1 or 2. It is sandy clay loam or fine sandy loam. The content of shell fragments ranges from less than 2 percent to 20 percent. Reaction ranges from medium acid to mildly alkaline.

The Bw and Bg horizons have hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 to 3. Subhorizons of the Bw horizon have chroma of 1 or 2 within a depth of 20 inches of the surface. The Bw and Bg horizons are loamy fine sand, fine sandy loam, very fine sandy loam, fine sand, or sand. Reaction ranges from medium acid to strongly alkaline.

The C horizon has hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 1 to 3. In some pedons subhorizons of the C horizon have hue of 5Y, 5G, or 5BG, value of 3 or 4, and chroma of 1 or 2, or they are neutral in hue and have value of 3 or 4. The C horizon is fine sand, sand, loamy fine sand, or sandy loam. Reaction ranges from neutral to very strongly alkaline.

Jeanerette Series

The Jeanerette series consists of somewhat poorly drained, moderately slowly permeable soils that formed in loess. These soils are on broad flats in the uplands. Slopes are less than 1 percent.

Soils of the Jeanerette series are fine-silty, mixed, thermic Typic Argiaquolls.

Jeanerette soils commonly are near Frost, Frozard, Judice, and Patoutville soils. Frost and Judice soils are lower on the landscape than the Jeanerette soils. Frost soils have an ochric epipedon. Judice soils have a fine-textured control section. Frozard and Patoutville soils are higher on the landscape than the Jeanerette soils. They have an ochric epipedon.

Typical pedon of Jeanerette silt loam; about 3.0 miles south of Erath, 0.75 mile east of Louisiana Highway 685, about 75 steps north of a parish road, 18 steps southwest of a fence line, Spanish Land Grant sec. 49, T. 13 S., R. 4 E.

Ap—0 to 6 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak fine granular structure; friable; many fine roots; neutral; abrupt smooth boundary.

Bt—6 to 18 inches; black (10YR 2/1) silty clay loam, dark gray (10YR 4/1) dry; moderate medium subangular blocky structure; firm; many fine roots; few distinct clay films on vertical faces of peds; common fine white concretions of calcium carbonate concentrated in the lower part of the horizon; few fine black concretions of iron and manganese oxide; moderately alkaline; gradual wavy boundary.

Btk—18 to 30 inches; dark grayish brown (10YR 4/2) silty clay loam; many medium distinct light olive brown (2.5Y 5/4, 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; many fine and medium and few coarse white concretions of calcium carbonate; few fine black concretions of iron and manganese oxide; common distinct very dark gray clay films on most faces of peds; moderately alkaline; gradual wavy boundary.

Btkg—30 to 40 inches; grayish brown (2.5Y 5/2) silty clay loam; common fine and few medium distinct light olive brown (2.5Y 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; common medium and coarse white concretions of calcium carbonate; common fine black concretions of iron and manganese oxide; common distinct dark gray clay films on vertical faces of peds; moderately alkaline; clear smooth boundary.

B′tg—40 to 56 inches; gray (10YR 5/1) silty clay loam; many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; common fine black concretions of iron and manganese oxide; common distinct clay films; mildly alkaline; gradual wavy boundary.

Cg—56 to 60 inches; gray (10YR 5/1) silty clay loam; common medium and few coarse prominent yellowish brown (10YR 5/6, 5/8) mottles; weak coarse prismatic structure; firm; common fine and medium black concretions of iron and manganese oxide; few faint clay flows along root channels; mildly alkaline.

The thickness of the solum ranges from 35 to 60 inches.

The Ap horizon is 5 to 8 inches thick. It has value of 2 or 3 and chroma of 1 or 2. Reaction ranges from medium acid to mildly alkaline.

The Bt horizon within the mollic epipedon has value of 2 or 3 and chroma of 1 or 2. The Bt, Btk, Btkg, and B′tg horizons below the mollic epipedon have hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 to 6. The number of mottles in shades of gray or brown ranges from none to common. Reaction throughout the Bt horizon ranges from neutral to moderately alkaline.

The Cg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 to 6. The texture is silt loam or silty clay loam. Reaction ranges from neutral to moderately alkaline.

Judice Series

The Judice series consists of poorly drained, very slowly permeable soils that formed in loamy and clayey alluvium of Pleistocene age. These soils are on flats, in swales, and in broad depressional areas on the Gulf Coast Prairies. Slopes are less than 1 percent.

Soils of the Judice series are fine, montmorillonitic, thermic Vertic Haplaquolls.

Judice soils commonly are near Jeanerette, Midland, Morey, and Mowata soils. Jeanerette soils are higher on the landscape than the Judice soils. They are fine-silty. Midland, Morey, and Mowata soils are in landscape positions similar to those of the Judice soils. Midland and Mowata soils have an ochric epipedon. Morey soils are fine-silty.

Typical pedon of Judice silty clay loam; about 7 miles southwest of Abbeville, 900 feet north of a parish road, 400 feet west of a fence row, NW¼NE¼ sec. 19, T. 13 S., R. 3 E.

Ap1—0 to 6 inches; very dark gray (10YR 3/1) silty clay loam, gray (10YR 5/1) dry; few medium distinct dark brown (7.5YR 3/2) mottles; moderate medium granular structure; slightly plastic and slightly sticky; few fine roots; strongly acid; abrupt smooth boundary.

Ap2—6 to 9 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; massive; plastic and sticky; few fine roots; slightly acid; abrupt smooth boundary.

A—9 to 15 inches; very dark gray (10YR 3/1) silty clay, gray (10YR 5/1) dry; few fine distinct olive brown (2.5Y 4/4) mottles; moderate medium subangular blocky structure; plastic; few shiny faces of peds; few fine roots; neutral; gradual wavy boundary.

Bg1—15 to 33 inches; dark gray (10YR 4/1) silty clay; many medium distinct olive brown (2.5Y 4/4) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; plastic and sticky; few fine roots; few thin patches of white crystals; few vertical cracks between prisms that are filled with dark gray clay; common shiny faces of peds; neutral; gradual wavy boundary.

Bg2—33 to 50 inches; gray (5Y 5/1) silty clay; many medium faint dark gray (10YR 4/1) mottles; weak coarse prismatic structure parting to weak moderate subangular blocky; sticky and plastic; few fine roots; neutral; gradual wavy boundary.

BCg—50 to 60 inches; gray (5Y 6/1) silty clay loam; common medium prominent light olive brown (2.5Y 5/6) mottles; weak coarse prismatic structure; plastic; few fine roots; few channels and cracks filled with dark gray and very dark gray clay; neutral.

The thickness of the solum ranges from 50 to 80 inches. The thickness of the mollic epipedon ranges from 10 to 20 inches.

The A horizon has value of 2 or 3 and chroma of 1 or 2. The thickness ranges from 10 to 20 inches. Reaction ranges from strongly acid to neutral.

The Bg and BCg horizons have hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 or 2. They have few to many mottles in shades of brown or gray. The texture is silty clay loam or silty clay. Reaction ranges from medium acid to moderately alkaline.

Kaplan Series

The Kaplan series consists of somewhat poorly drained, slowly permeable soils that formed in clayey and loamy alluvium on constructional terraces of late Pleistocene age. These soils are on low ridges on the Gulf Coast Prairies. Slopes are dominantly less than 1 percent, but they range to 3 percent.

Soils of the Kaplan series are fine, mixed, thermic Aeric Ochraqualfs.

Kaplan soils are commonly near Crowley, Ged, Judice, Midland, Morey, Mowata, and Patoutville soils. Crowley soils are in landscape positions similar to those of the Kaplan soils. They have an abrupt textural change between the albic horizon and the argillic horizon. Ged, Judice, Midland, Morey, and Mowata soils are in the lower landscape positions. Ged soils are very poorly drained and have a very fluid surface layer and a slightly fluid subsurface layer. Judice and Morey soils have a mollic epipedon. Midland soils do not have red mottles in the upper part of the subsoil. Mowata soils have an albic horizon that extends into the subsoil. Patoutville soils are in the higher landscape positions. They are fine-silty.

Typical pedon of Kaplan silt loam; about 3.0 miles north of Kaplan, 0.75 mile west of Louisiana Highway 35, about 700 feet south of a parish road, NE¼NW¼ sec. 32, T. 11 S., R. 2 E.

Ap1—0 to 4 inches; dark grayish brown (10YR 4/2) silt loam; moderate coarse granular structure; friable; common fine and medium roots; common yellowish brown (10YR 5/8) stains along root channels; slightly acid; abrupt smooth boundary.

Ap2—4 to 8 inches; dark gray (10YR 4/1) silt loam; few fine distinct dark yellowish brown (10YR 4/4) mottles; massive; firm; few fine roots; common reddish brown (5YR 4/4) stains along root channels; neutral; gradual smooth boundary.

Btg—8 to 18 inches; dark gray (10YR 4/1) silty clay loam; common medium prominent yellowish brown (10YR 5/6) and common fine prominent red (2.5YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; few distinct clay films on vertical faces of peds; few fine black concretions of iron and manganese oxide; mildly alkaline; gradual wavy boundary.

Btkg1—18 to 25 inches; grayish brown (10YR 5/2) silty clay loam; few medium distinct yellowish brown (10YR 5/6) and many fine prominent red (2.5YR 5/6) mottles; weak coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common distinct gray and dark gray clay films on faces of peds; few fine black concretions of iron and manganese oxide; few medium white concretions of calcium carbonate; moderately alkaline; gradual wavy boundary.

Btkg2—25 to 40 inches; gray (10YR 5/1) silty clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; moderate coarse prismatic structure parting to moderate medium subangular blocky; firm; few fine roots; common fine vesicular pores; common faint gray and dark gray clay films on faces of peds; common fine black concretions of iron and manganese oxide; common medium and coarse white concretions of calcium carbonate; moderately alkaline; gradual wavy boundary.

Btkg3—40 to 51 inches; light brownish gray (2.5Y 6/2) silty clay loam; common medium distinct yellowish brown (10YR 5/6) mottles; moderate coarse prismatic structure parting to weak medium subangular blocky; firm; common fine vesicular pores; common distinct gray clay films on vertical faces of peds; few medium and coarse black concretions of iron and manganese oxide; many medium and coarse white concretions of calcium carbonate; few slickensides; moderately alkaline; gradual wavy boundary.

Btkg4—51 to 60 inches; gray (5Y 6/1) silty clay loam; common medium prominent yellowish brown (10YR 5/8) mottles; moderate coarse prismatic structure; firm; common fine vesicular pores; few distinct clay films on vertical faces of peds; common medium black concretions of iron and manganese oxide; common medium and coarse white concretions of calcium carbonate; few slickensides; moderately alkaline.

The thickness of the solum dominantly is 50 to 70 inches, but it ranges from 40 to 85 inches.

The A or Ap horizon has value of 3 or 4 and chroma of 1 to 3. Where the horizon has value of 3, it is less than 7 inches thick. The A horizon is dominantly slightly acid or neutral, but it ranges to moderately alkaline. It has few to many mottles.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. It has few to many mottles in shades of red or brown. Coatings on faces of peds are very dark gray or dark gray. Reaction ranges from neutral to moderately alkaline.

The Btkg horizon has hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2. It has few to many mottles in shades of brown or red. Coatings on faces of peds are gray or dark gray. Reaction is mildly alkaline or moderately alkaline. Concretions of calcium carbonate range from few to many. The texture is silty clay loam or silty clay.

Lafitte Series

The Lafitte series consists of very poorly drained, moderately rapidly permeable, organic soils that formed in herbaceous plant material over clayey alluvium. These soils are in brackish marshes. They are ponded and flooded most of the time. Slopes are less than 1 percent.

Soils of the Lafitte series are euic, thermic Typic Medisaprists.

Lafitte soils are commonly near Clovelly, Delcomb, and Scatlake soils. Clovelly and Delcomb soils are in landscape positions similar to those of the Lafitte soils. They have less than 51 inches of organic material. Scatlake soils are in saline marshes. They are mineral.

Typical pedon of Lafitte muck; about 8.0 miles south of Delcomb, 1.0 mile north of the Intracoastal Waterway, 0.75 mile east of Oaks Canal, T. 14 S., R. 5 E.

Oa1—0 to 8 inches; very dark grayish brown (10YR 3/2) muck; about 60 percent fiber, 15 percent rubbed; about 50 percent mineral; massive; very fluid (flows easily between fingers when squeezed, leaving only coarse fibers and roots in the hand); many live roots; slightly acid; clear wavy boundary.

Oa2—8 to 30 inches; black (10YR 2/1) muck; about 40 percent fiber, 5 percent rubbed; about 50 percent mineral; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear wavy boundary.

Oa3—30 to 55 inches; very dark grayish brown (10YR 3/2) muck; about 50 percent fiber, 10 percent rubbed; about 50 percent mineral; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; abrupt wavy boundary.

Cg—55 to 70 inches; very dark gray (N 3/0) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline.

The depth to mineral layers ranges from 51 to more than 100 inches. The conductivity of the saturation extract varies seasonally and according to the salt content of preceding floodwaters, but it averages about 4 to 8 millimhos per centimeter in at least the surface and subsurface tiers during most of the year.

The organic material in the surface tier has hue of 7.5YR or 10YR, value of 2 to 4, and chroma of 1 or 2. Fiber content after rubbing ranges from 1 to 35 percent.

Reaction ranges from slightly acid to moderately alkaline.

The organic material in the subsurface and bottom tiers has hue of 7.5YR or 10YR, value of 2 or 3, and chroma of 1 or 2. Fiber content after rubbing ranges from 1 to 35 percent. Reaction ranges from slightly acid to moderately alkaline.

The Cg horizon has hue of 5Y or 5GY, value of 3 to 5, and chroma of 1, or it is neutral in hue and has value of 3 to 5. The texture is dominantly clay or silty clay, but some pedons have thin strata of silty clay loam or silt loam. Reaction ranges from neutral to moderately alkaline.

Larose Series

The Larose series consists of very poorly drained, very slowly permeable, very fluid, mineral soils that formed in clayey alluvium. These soils are in freshwater marshes that are ponded and flooded most of the time. Slopes are less than 1 percent.

Soils of the Larose series are very fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Larose soils commonly are near Allemands, Bancker, Barbary, Clovelly, and Ged soils. Allemands, Bancker, and Clovelly soils are in landscape positions similar to those of the Larose soils. Allemands and Clovelly soils have an organic surface layer that is more than 16 inches thick. Bancker soils are more saline than the Larose soils. Barbary soils are in swamps near the Larose soils. They contain fragments of wood. Ged soils are slightly higher on the landscape than the Larose soils. They have firm mineral layers within 18 inches of the mineral surface layer.

Typical pedon of Larose mucky clay; about 5.5 miles northeast of Pecan Island, 1,800 feet east of White Lake, NE¼NE¼ sec. 19, T. 15 S., R. 1 E.

Ag1—0 to 6 inches; dark gray (5Y 4/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving only roots in the hand); many fine and medium roots; slightly acid; clear smooth boundary.

Ag2—6 to 18 inches; black (10YR 2/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving only roots and fiber in the hand); medium acid; clear smooth boundary.

Ag3—18 to 30 inches; black (10YR 2/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); slightly acid; gradual smooth boundary.

Cg1—30 to 52 inches; dark gray (N 4/0) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); mildly alkaline; clear smooth boundary.

Cg2—52 to 60 inches; dark gray (5Y 4/1) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline.

All mineral horizons to a depth of 60 inches or more have an n value of 1 or more.

The Ag horizon has hue of 10YR, 2.5Y, or 5Y, value of 2 to 4, and chroma of 0 to 2, or it is neutral in hue and has value of 2 to 4. The texture of the Ag2 and Ag3 horizons is clay, silty clay, or mucky clay. Reaction ranges from medium acid to mildly alkaline.

The Cg horizon has hue of 10YR, 5Y, 5GY, or 5BG, value of 3 to 5, and chroma of 0 to 2, or it is neutral in hue and has value of 3 to 5. The texture is dominantly clay, silty clay, or mucky clay, but some pedons have a thin organic layer within the mineral layers. Reaction ranges from slightly acid to moderately alkaline.

Memphis Series

The Memphis series consists of well drained, moderately permeable soils that formed in loess. These soils are on convex ridgetops and side slopes in the uplands. Slopes range from 1 to 5 percent.

Soils of the Memphis series are fine-silty, mixed, thermic Typic Hapludalfs.

Memphis soils commonly are near Coteau and Frost soils. Coteau soils are lower on the landscape than the Memphis soils and are somewhat poorly drained. They have gray mottles in the upper part of the solum. Frost soils are in drainageways and are poorly drained. They have an aquic moisture regime.

Typical pedon of Memphis silt loam, 1 to 5 percent slopes; about 3.0 miles southeast of Maurice, 1.5 miles east of U.S. Highway 167, about 900 feet east of a gravel road, 100 feet north of a field road, Spanish Land Grant sec. 51, T. 11 S., R. 4 E.

Ap1—0 to 5 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; very strongly acid; abrupt smooth boundary.

Ap2—5 to 8 inches; dark brown (10YR 3/3) silt loam; weak coarse granular structure; friable; common fine roots; common spheroidal pores; very strongly acid; abrupt smooth boundary.

Bt1—8 to 26 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of most peds; very strongly acid; clear smooth boundary.

Bt2—26 to 41 inches; dark brown (7.5YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of most peds; few silt coatings on vertical faces of some peds; very strongly acid; gradual wavy boundary.

BC—41 to 60 inches; dark brown (7.5YR 4/4) silt loam; common fine distinct light yellowish brown (10YR 6/4) mottles; weak medium subangular blocky structure; friable; common fine roots; few faint clay films on vertical faces of some peds; common silt coatings on vertical faces of some peds; strongly acid; gradual wavy boundary.

The thickness of the solum ranges from 32 to 78 inches. Reaction ranges from very strongly acid to medium acid throughout the profile.

The Ap or A horizon is 2 to 8 inches thick. It has hue of 10YR or 7.5YR, value of 3 to 5, and chroma of 2 to 4. Where the A horizon or subhorizon has value of 3, it is less than 6 inches thick.

The Bt and BC horizons have hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 4 to 6. The texture is silt loam or silty clay loam.

Some pedons have a C horizon. This horizon has the same range in colors and textures as the Bt and BC horizons.

Mermentau Series

The Mermentau series consists of poorly drained, very slowly permeable soils that formed in clayey over loamy coastal alluvium. These soils are on low ridges and in swales on broad coastal brackish marshes. Slopes are less than 1 percent.

Soils of the Mermentau series are clayey over loamy, montmorillonitic, nonacid, thermic Aeric Haplaquepts.

Mermentau soils commonly are near Bancker, Cheniere, Creole, Hackberry, and Scatlake soils. Bancker, Creole, and Scatlake soils are lower on the landscape than the Mermentau soils. They are very fluid or slightly fluid throughout. Cheniere and Hackberry soils are higher on the landscape than the Mermentau soils. Cheniere soils are somewhat excessively drained. Hackberry soils are somewhat poorly drained.

Typical pedon of Mermentau clay; about 4 miles west of Freshwater City, 500 feet south of Mulberry Island, 800 feet north of the Gulf of Mexico, NW¼NW¼ sec. 21, T. 17 S., R. 1 E.

A—0 to 8 inches; black (10YR 2/1) clay; weak medium angular blocky structure; firm; many fine and medium roots; neutral; gradual wavy boundary.

Bg—8 to 21 inches; gray (10YR 5/1) clay; common medium distinct dark yellowish brown (10YR 4/4) mottles; weak coarse prismatic structure parting to moderate medium blocky; firm; common fine roots; few fine pores; mildly alkaline; abrupt smooth boundary.

2Cg1—21 to 46 inches; grayish brown (10YR 5/2) fine sandy loam; common medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; few fine roots; many fine to medium fragments of shells; moderately alkaline; gradual wavy boundary.

2Cg2—46 to 56 inches; gray (10YR 5/1) sandy loam; common medium distinct dark yellowish brown (10YR 4/4) mottles; massive; friable; common fine fragments of shells; moderately alkaline; gradual wavy boundary.

2Cg3—56 to 60 inches; gray (5Y 5/1) clay loam; few fine prominent dark yellowish brown (10YR 4/4) mottles; massive; friable; common fine and medium fragments of shells; moderately alkaline.

The thickness of the solum ranges from 10 to 30 inches. Reaction ranges from neutral to moderately alkaline throughout the profile. The electrical conductivity of the saturation extract ranges from 4 to 16 millimhos per centimeter.

The A horizon has hue of 10YR, 2.5Y, or 5Y, value of 2 to 4, and chroma of 1 or 2.

The Bg horizon has hue of 10YR, 2.5Y, or 5Y or is neutral in hue. It has value of 4 or 5 and chroma of 0 or 1. The texture is silty clay or clay.

The 2Cg horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1 or 2. The texture is very fine sandy loam, fine sandy loam, sandy loam, loam, or clay loam. The number of shell fragments ranges from none to many.

The 3Cg horizon, if it occurs, has hue of 10YR, 2.5Y, 5Y, or 5GY or is neutral in hue. It has value of 5 or 6 and chroma of 0 or 1. The texture is sandy clay, silty clay, or clay. The n value ranges from 0.7 to more than 1.0. The number of shell fragments is none or few.

Midland Series

The Midland series consists of poorly drained, very slowly permeable soils that formed in loamy and clayey alluvium of late Pleistocene age. These soils are on broad flats and in slightly concave areas on the Gulf Coast Prairies. Slopes are less than 1 percent.

Soils of the Midland series are fine, montmorillonitic, thermic Typic Ochraqualfs.

Midland soils commonly are near Gueydan, Judice, Kaplan, Morey, and Mowata soils. Gueydan soils are lower on the landscape than the Midland soils. They do not have an argillic horizon. Judice, Morey, and Mowata soils are in landscape positions similar to those of the Midland soils. Judice and Morey soils have a mollic epipedon. Mowata soils have an albic horizon that extends into the argillic horizon. Kaplan soils are on ridges and are somewhat poorly drained. They have red mottles in the upper part of the argillic horizon.

Typical pedon of Midland silty clay loam; about 3.0 miles east of Gueydan, 0.5 mile north of Louisiana Highway 14, about 300 feet east of a gravel road, NW¼SW¼ sec. 10, T. 12 S., R. 1 W.

Ap1—0 to 5 inches; dark grayish brown (10YR 4/2) silty clay loam; weak very fine subangular blocky structure; firm; many fine and medium roots; slightly acid; abrupt smooth boundary.

Ap2—5 to 8 inches; dark grayish brown (10YR 4/2) silty clay loam; common fine distinct dark yellowish brown (10YR 4/4) mottles; massive; firm; many fine and medium roots; common reddish brown oxidation stains along root channels; slightly acid; abrupt smooth boundary.

Btg1—8 to 14 inches; dark gray (10YR 4/1) silty clay loam; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; common fine roots; few shiny faces of peds; common distinct clay films on most faces of peds; neutral; clear wavy boundary.

Btg2—14 to 22 inches; gray (10YR 5/1) silty clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on most faces of peds; neutral; gradual wavy boundary.

Btg3—22 to 31 inches; gray (10YR 5/1) silty clay; many medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; common clay films on most faces of peds; few fine black concretions of iron and manganese oxide; mildly alkaline; gradual wavy boundary.

Btg4—31 to 45 inches; gray (10YR 6/1) silty clay; common medium prominent yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; few distinct clay films on faces of peds; few fine black concretions of iron and manganese oxide; few medium white concretions of calcium carbonate; mildly alkaline; gradual wavy boundary.

BCg—45 to 60 inches; gray (5Y 6/1) silty clay; common medium prominent yellowish brown (10YR 5/8) mottles; weak medium subangular blocky structure; firm; common medium white concretions of calcium carbonate; mildly alkaline.

The thickness of the solum ranges from 40 to 80 inches.

The Ap horizon has value of 4 or 5 and chroma of 1 or 2. It is 5 to 14 inches thick. Reaction ranges from strongly acid to neutral.

The Btg and BCg horizons have hue of 10YR, 2.5Y, or 5Y. They have value of 4 or 5 and chroma of 1 or have value of 6 and chroma of 1 or 2. They have few to many mottles in shades of brown, yellow, or olive. The texture is clay, silty clay, or silty clay loam. Reaction ranges from strongly acid to moderately alkaline.

Morey Series

The Morey series consists of poorly drained, slowly permeable soils that formed in loamy alluvium of Pleistocene age. These soils are on broad flats on the Gulf Coast Prairies. Slopes are less than 1 percent.

Soils of the Morey series are fine-silty, mixed, thermic Typic Argiaquolls.

Morey soils commonly are near Crowley, Gueydan, Judice, Kaplan, Midland, and Mowata soils. These nearby soils have a fine-textured control section. Crowley and Kaplan soils are higher on the landscape than the Morey soils and are somewhat poorly drained. Gueydan, Judice, Midland, and Mowata soils are in landscape positions similar to those of the Morey soils.

Typical pedon of Morey silt loam; about 4 miles southwest of Kaplan, 2 miles west of Louisiana Highway 708, about 500 feet north of Sledge Canal, NW¼NW¼ sec. 26, T. 12 S., R. 1 E.

Ap—0 to 6 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak medium and fine granular structure; friable; many fine roots; very strongly acid; abrupt smooth boundary.

BA—6 to 10 inches; black (10YR 2/1) silt loam, dark gray (10YR 4/1) dry; weak medium subangular blocky structure; friable; many fine roots; medium acid; clear smooth boundary.

Btg1—10 to 23 inches; dark gray (10YR 4/1) silty clay loam; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films on faces of peds; common strong brown (7.5YR 5/6) oxidation stains in root channels; medium acid; gradual wavy boundary.

Btg2—23 to 37 inches; gray (10YR 5/1) silty clay loam; many fine prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct dark gray clay films on faces of peds; slightly acid; gradual wavy boundary.

Btg3—37 to 54 inches; light brownish gray (2.5Y 6/2) silty clay loam; common fine prominent yellowish brown (10YR 5/6) mottles; weak medium subangular blocky structure; firm; few distinct clay films on faces of peds; few strong brown stains on surface of root channels; neutral; gradual wavy boundary.

BCg—54 to 60 inches; light olive gray (5Y 6/2) silty clay loam; few medium prominent yellowish brown (10YR 5/8) mottles; weak coarse prismatic structure parting to weak medium subangular blocky; firm; neutral.

The thickness of the solum ranges from 60 to 80 inches or more. The thickness of the mollic epipedon ranges from 10 to 20 inches.

The Ap horizon has value of 2 or 3 and chroma of 1 or 2. The texture is silt loam, loam, or silty clay loam. Reaction ranges from very strongly acid to neutral.

The BA horizon has the same range in colors as the Ap horizon. The texture is silt loam, loam, or silty clay loam. Reaction ranges from strongly acid to neutral.

The Btg1 horizon has hue of 10YR, 2.5Y, or 5Y, value of 4 to 6, and chroma of 1. The number of mottles in shades of brown or olive ranges from none to common. The texture is silty clay loam or clay loam. Reaction ranges from medium acid to mildly alkaline.

The Btg2, Btg3, and BCg horizons have hue of 10YR, 2.5Y, or 5Y, value of 5 or 6, and chroma of 1 or 2. They have few to many mottles in shades of brown or olive. The texture is silty clay loam, silty clay, clay, or clay loam. Reaction in the Btg2 and Btg3 horizons ranges from medium acid to mildly alkaline. Reaction in the BCg horizon ranges from medium acid to moderately alkaline.

Mowata Series

The Mowata series consists of poorly drained, very slowly permeable soils that formed in loamy and clayey alluvium of Pleistocene age. These soils are on broad flats and along constructional drainageways on the Gulf Coast Prairies. Slopes are less than 1 percent.

Soils of the Mowata series are fine, montmorillonitic, thermic Typic Glossaqualfs.

Mowata soils are commonly near Crowley, Frost, Judice, Kaplan, Midland, and Morey soils. Crowley and Kaplan soils are on ridges and are somewhat poorly drained. They do not have an albic horizon that extends into the subsoil. Frost, Judice, Midland, and Morey soils are in landscape positions similar to those of the Mowata soils. Frost soils are fine-silty. Judice and Morey soils have a mollic epipedon. Midland soils do not have an albic horizon that extends into the subsoil.

Typical pedon of Mowata silt loam; about 1 mile west of Indian Bayou, 300 feet north of Louisiana Highway 92, about 400 feet west of a fence line, SE¼SW¼ sec. 34, T. 10 S., R. 2 E.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam; few fine prominent strong brown (7.5Y 5/6) mottles; weak fine subangular blocky structure; friable; common fine roots; few fine black concretions of manganese oxide; medium acid; abrupt smooth boundary.

Eg—5 to 14 inches; dark gray (10YR 4/1) silt loam; massive; friable; common fine roots; strong brown oxidation stains along root channels; neutral; clear irregular boundary.

B/E—14 to 22 inches; dark gray (10YR 4/1) silty clay loam (Bt); common fine prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films on most faces of peds; tongues of dark gray (10YR 4/1) silt loam (E) extending to base of the horizon; medium acid; clear wavy boundary.

Btg1—22 to 44 inches; gray (10YR 5/1) silty clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; very firm; few fine roots; common distinct dark gray clay films on most faces of peds; crawfish krotovina extending through the horizon; medium acid; gradual wavy boundary.

Btg2—44 to 58 inches; gray (10YR 5/1) silty clay; common medium prominent yellowish brown (10YR 5/6) mottles; moderate medium prismatic structure parting to moderate medium subangular blocky; very firm; few distinct clay films on some faces of most peds; many fine and medium black concretions of iron and manganese oxide; crawfish krotovina extending through the horizon; slightly acid; gradual wavy boundary.

BCg—58 to 60 inches; mottled gray (10YR 6/1) and yellowish brown (10YR 5/8) silty clay loam; massive; very firm; few pores lined with clay; many fine and common medium black concretions of iron and manganese oxide; neutral.

The thickness of the solum ranges from 40 to 75 inches.

The Ap horizon has value of 3 to 5 and chroma of 1 or 2. Where the horizon has moist value of less than 3.5, it is less than 6 inches thick. Reaction ranges from strongly acid to neutral.

The Eg horizon has value of 4 to 6 and chroma of 1 or 2. Reaction ranges from medium acid to neutral.

The Bt part of the B/E horizon and the Btg horizon have hue of 10YR, 2.5Y, or 5Y. They have value of 4 or 5 and chroma of 1 or value of 6 and chroma of 1 or 2. They have few to many mottles in shades of brown or yellow. The faces of peds are dark gray or gray. The texture is silty clay, silty clay loam, or clay loam. Reaction ranges from strongly acid to moderately alkaline. Tongues of silt loam extend deep into the Bt horizon and range from ½ inch to 8 inches in width.

The BCg horizon has the same range in colors and textures as the Btg horizon. Reaction ranges from neutral to moderately alkaline.

Some pedons have a Cg horizon. This horizon has the same range in colors, textures, and reaction as the BCg horizon.

Patoutville Series

The Patoutville series consists of somewhat poorly drained, slowly permeable soils that formed in loess. These soils are on broad ridges and short side slopes in the uplands. Slopes range from 0 to 3 percent.

Soils of the Patoutville series are fine-silty, mixed, thermic Aeric Ochraqualfs.

Patoutville soils commonly are near Coteau, Crowley, Frost, and Jeanerette soils. Coteau soils are slightly higher on the landscape than the Patoutville soils. They have chroma of 3 or more in the subsoil. Crowley soils are in landscape positions similar to those of the Patoutville soils. They have a fine-textured control section. Frost and Jeanerette soils are lower on the landscape than the Patoutville soils. Frost soils have an albic horizon that extends into the subsoil. Jeanerette soils have a mollic epipedon.

Typical pedon of Patoutville silt loam, 0 to 1 percent slopes; about 1.5 miles east of Maurice, 0.3 mile north of Louisiana Highway 92, about 18 steps north of a fence line, Spanish Land Grant sec. 43, T. 11 S., R. 4 E.

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; many fine prominent strong brown (7.5YR 5/6) mottles; moderate fine granular structure; very friable; many fine and medium roots; very strongly acid; abrupt smooth boundary.

E—6 to 11 inches; light brownish gray (10YR 6/2) silt loam; few medium distinct yellowish brown (10YR 5/6) mottles; massive; friable; common fine roots; common fine black concretions of iron and manganese oxide; strongly acid; abrupt smooth boundary.

Btg1—11 to 19 inches; dark grayish brown (10YR 4/2) silty clay loam; many fine prominent red (2.5YR 5/6) and few fine distinct yellowish brown (10YR 5/6) mottles; moderate medium subangular blocky structure; firm; common fine roots; common fine black concretions of iron and manganese oxide; common distinct clay films on faces of most peds; strongly acid; clear wavy boundary.

Btg2—19 to 30 inches; grayish brown (10YR 5/2) silty clay loam; many fine prominent red (2.5YR 5/6) and common medium distinct yellowish brown (10YR 5/8) mottles; weak medium prismatic structure parting to moderate medium subangular blocky; firm; common fine roots; common fine black concretions of iron and manganese oxide; common distinct dark grayish brown clay films on some faces of most peds; medium acid; clear wavy boundary.

Btg3—30 to 42 inches; grayish brown (10YR 5/2) silty clay loam; common medium distinct yellowish brown (10YR 5/8) mottles; moderate coarse prismatic structure; firm; few fine roots; many medium and coarse black concretions of iron and manganese oxide; few distinct clay films on vertical faces of some peds; medium acid; gradual wavy boundary.

BCg—42 to 70 inches; mottled gray (10YR 5/1) and yellowish brown (10YR 5/6) silty clay loam; weak medium prismatic structure; firm; many medium and coarse black concretions of iron and manganese oxide; slightly acid.

The thickness of the solum ranges from 36 to 72 inches.

The Ap horizon is 4 to 8 inches thick. It has value of 4 or 5 and chroma of 2 or 3. Reaction dominantly ranges from very strongly acid to slightly acid. It ranges to moderately alkaline where the soils are irrigated.

The E horizon has value of 4 to 6 and chroma of 1 or 2. Reaction dominantly ranges from strongly acid to slightly acid. It ranges to moderately alkaline where the soils are irrigated.

The Btg horizon has hue of 10YR or 2.5Y, value of 4 or 5, and chroma of 1 or 2. It has few to many mottles in shades of red or brown. The texture is silt loam or silty clay loam. Reaction ranges from strongly acid to neutral.

The BCg horizon has hue of 10YR or 2.5Y, value of 5 or 6, and chroma of 1 or 2. The texture is silt loam or silty clay loam. Reaction ranges from slightly acid to moderately alkaline.

Scatlake Series

The Scatlake series consists of very poorly drained, very slowly permeable, very fluid, mineral soils that formed in unconsolidated, clayey alluvium and organic material. These soils are in saline marshes that are ponded and flooded most of the time. Slopes are less than 1 percent.

Soils of the Scatlake series are very fine, montmorillonitic, nonacid, thermic Typic Hydraquents.

Scatlake soils commonly are near Bancker, Clovelly, and Creole soils. Bancker and Clovelly soils are in brackish marshes. They are less saline than the Scatlake soils. Creole soils are slightly higher on the landscape than the Scatlake soils and are less fluid in the upper part.

Typical pedon of Scatlake mucky clay; about 8 miles southwest of Pecan Island, 1,000 feet west of Rollover Bayou, 2,000 feet north of the Gulf of Mexico, T. 17 S., R. 2 W.

Ag—0 to 8 inches; very dark gray (10YR 3/1) mucky clay; few fine distinct light olive brown (2.5Y 5/4) mottles; massive; very fluid (flows easily between fingers when squeezed, leaving a moderate amount of residue in the hand); many fine roots; neutral; clear wavy boundary.

Cg1—8 to 20 inches; dark gray (5Y 4/1) clay; massive; few roots and fibers; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear smooth boundary.

Cg2—20 to 30 inches; gray (5Y 5/1) clay stratified with thin layers of very dark gray (10YR 3/1) mucky clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear wavy boundary.

Cg3—30 to 50 inches; dark gray (5Y 4/1) clay stratified with thin layers of black (10YR 2/1) muck; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline; clear wavy boundary.

Cg4—50 to 80 inches; gray (N 5/0) clay; massive; very fluid (flows easily between fingers when squeezed, leaving the hand empty); moderately alkaline.

The n value is more than 1.0 throughout the profile. Reaction ranges from neutral to moderately alkaline throughout the profile. Electrical conductivity ranges from 8 to 16 millimhos per centimeter throughout the profile.

The Ag horizon has hue of 10YR or 5Y, value of 2 to 4, and chroma of 1, or it is neutral in hue and has value of 2 to 4.

The Cg horizon has hue of 5Y, 10YR, 5GB, or 5GY, value of 4 or 5, and chroma of 1, or it is neutral in hue and has value of 4 to 6. The texture is dominantly clay or mucky clay, but some pedons have thin layers of black muck.

Formation of the Soils

Wayne H. Hudnall, Agronomy Department, Louisiana Agricultural Experiment Station, Louisiana State University Agricultural Center, helped prepare this section.

This section explains the processes and factors of soil formation as they relate to the soils of Vermilion Parish. It also describes the landforms and surface geology in the parish.

Processes of Soil Formation

The processes of soil formation influence the kind and degree of profile development. The factors of soil formation—climate, living organisms, relief, parent material, and time—determine the rate and relative effectiveness of the different processes.

Soil-forming processes are those that result in additions of organic, mineral, and gaseous materials to the soil; losses of these materials from the soil; translocation of materials from one point to another within the soil; and physical and chemical transformation of mineral and organic material within the soil *(9, 18)*.

Many processes occur simultaneously. Examples are the accumulation of organic matter, the development of soil structure, and the leaching of bases from some soil horizons. The contribution of a particular process can change over a period of time. The installation of drainage and water-control systems, for example, can change the length of time that some soils are flooded or saturated with water. Some processes that have contributed to the formation of the soils in Vermilion Parish are described in the following paragraphs.

Organic matter has accumulated in all of the soils, has partly decomposed, and has been incorporated into the soils. The organic accumulations range from humus in mineral horizons in Crowley and Morey soils to muck in organic horizons in Allemands and Clovelly soils. Because most of the organic matter is produced in and above the surface layer, this layer is higher in content of organic matter than the lower horizons. Living organisms decompose, incorporate, and mix organic residue into the soil. Some of the more stable products of decomposition remain as finely divided material that helps to darken the soil and increases the water-holding and cation-exchange capacities and the degree of granulation in the soil. As much as 4 feet of organic matter has accumulated on the surface of some soils in the coastal marshes. Because these soils are continually saturated, aquatic vegetation grows well, producing large amounts of organic matter. This organic matter decomposes slowly and remains in the soils for long periods.

The addition of alluvium and beach deposits on the surface has provided new material in some areas of the parish. The soils that formed in these areas generally do not have prominent horizons. For example, Hackberry soils formed in areas characterized by accumulations of sandy beach deposits. These soils have essentially uniform textures throughout and do not have a prominent or strongly developed B horizon.

Processes resulting in the development of soil structure have occurred in most of the soils in the parish. Plant roots and other organisms help to rearrange soil material into secondary aggregates. The decomposition products of organic residue and the secretions of organisms serve as cementing agents that help to stabilize structural aggregates. Alternating periods of wetting and drying and shrinking and swelling contribute to the development of structural aggregates, particularly in soils that have appreciable amounts of clay. Soil structure is typically most pronounced in the surface layer, which contains the most organic matter, and in clayey horizons that are subject to alternating periods of wetting and drying. The saturated state of the soils in marshes and swamps, however, has hindered the soil structure-forming processes. As a result, these soils are massive.

Most of the soils in the parish are characterized by horizons that have reduced iron and manganese compounds. Reducing conditions prevail for long periods in poorly aerated horizons. Consequently, the relatively soluble, reduced forms of iron and manganese predominate over the less soluble, oxidized forms. The reduced compounds of these elements result in the gray colors in the Bg and Cg horizons that are characteristic of many of the soils. Appreciable amounts of the more soluble reduced forms of iron and manganese can be removed from the soils or translocated within the soils by water.

Iron and manganese concretions and brown mottles in predominantly gray horizons indicate the segregation and local concentration of oxidizing and reducing conditions in the soils. The well drained and somewhat excessively drained soils do not have the gray color associated with wetness and poor aeration because they are not dominated by a reducing environment.

The loss of elements from the soil is another process in soil formation. Water moving through the soils has leached soluble bases and free carbonates from at least one horizon in most of the soils in the parish. Most of the mineral soils are less acid with increasing depth. The most extensive leaching typically occurs in well drained, loamy soils.

The formation, translocation, and accumulation of clay have aided in the formation of most of the soils in Vermilion Parish. Silicon and aluminum, which are released as a result of the weathering of such minerals as hornblende, amphiboles, and feldspars, can recombine to form secondary clay minerals, such as kaolinite. Secondary accumulations of clay result largely from the translocation of clay from the upper to the lower horizons. As water moves downward, it can carry small amounts of clay in suspension. As the clay is redeposited, it accumulates in the part of the profile where water penetration is deepest or in horizons in which the clay becomes flocculated or is filtered out by fine pores in the soil. Over long periods, these processes can result in distinct horizons of clay accumulation. Most of the soils on the Gulf Coast Prairies and in the uplands of Vermilion Parish have a subsoil characterized by a secondary accumulation of clay.

The secondary accumulation of calcium carbonate in the lower horizons has aided in the formation of some of the soils in the parish. In places Jeanerette, Kaplan, Midland, and Morey soils have secondary accumulations of carbonate within a depth of 60 inches. Secondary accumulations of sodium salts and calcium carbonate are in the subsoil of Frozard soils. Dissolved carbonates from overlying horizons can be translocated to lower horizons by water. Other processes can result in the accumulation of carbonate. Examples are the segregation of material within a horizon, the upward translocation of material from the lower horizons during periods when the water table fluctuates, and the accumulation of material from readily weatherable minerals, such as plagioclase.

Factors of Soil Formation

Soil is a natural, three-dimensional body that formed on the earth's surface. It has properties resulting from the integrated effects of climate and living organisms acting on parent material, as conditioned by relief over periods of time.

The interaction of five main factors influences the processes of soil formation and results in differences among soils. These factors are climate, the physical arrangement and chemical composition of the parent material, the kinds of plants and other organisms living in and on the soil, the relief of the land and its effect on runoff and soil moisture conditions, and the amount of time that has elapsed since soil formation began *(13, 18)*.

The relative effect of any one factor can differ from place to place, but the interaction of all the factors determines the kind of soil that forms. As a result, many of the differences in soils cannot be attributed to differences in only one factor. For example, the content of organic matter in the soils of Vermilion Parish is influenced by several factors, including relief, parent material, and living organisms.

Climate

Vermilion Parish is in a region characterized by a humid, subtropical climate. A detailed description of the climate in the parish is given in the section "General Nature of the Parish."

The climate is relatively uniform throughout the parish. Local differences among the soils are not the result of great differences in climate. Warm average temperatures and large amounts of precipitation favor the rapid weathering of readily weatherable minerals in the soils. Weathering processes involving the release and reduction of iron and manganese are indicated by gray colors in the Bg or Cg horizon in many of the soils. The oxidation and segregation of these elements resulting from alternating oxidizing and reducing conditions are indicated by mottled horizons and iron and manganese concretions in most of the soils on the Gulf Coast Prairies.

Differences between soils can occur on landscapes of differing ages in part because of climatic variations over thousands of years. On landscapes of comparable ages, differences in the weathering, leaching, and translocation of clay are caused chiefly by variations in time, relief, and parent material rather than by variations in climate.

Living Organisms

The living organisms affecting the processes of soil formation exert a major influence on the kind and extent of horizon development. Plant growth and animal activity physically modify the soils, thereby affecting porosity, tilth, and content of organic matter. Through photosynthesis, plants use energy from the sun to synthesize the compounds necessary for growth. The decomposition of plants returns nutrients to the soils and serves as a major source of organic residue. The decomposition and incorporation of organic matter by micro-organisms improve tilth and generally increase the infiltration rate and available water capacity in the soils.

Relatively stable organic compounds in soils generally have a high cation-exchange capacity and thus improve the ability of the soils to absorb and store nutrients, such as calcium, magnesium, and potassium. The extent of these and other processes and the kind of organic matter produced can vary widely, depending on the kinds of organisms living in and on the soils. For example, the content of organic matter typically is higher in soils that formed under aquatic vegetation than in soils that formed under prairie vegetation *(9, 13)*.

The soils in Vermilion Parish formed under three different major groups of native vegetation. Crowley, Jeanerette, Judice, Kaplan, Midland, Morey, and Mowata soils formed under prairie vegetation, predominantly tall grasses, such as big bluestem. Allemands, Bancker, Clovelly, Creole, Ged, Larose, Mermentau, and Scatlake soils formed under aquatic vegetation in successionally fresh and saline environments. Cheniere and Hackberry soils formed under short grasses, such as common bermudagrass and carpetgrass.

The content of organic matter generally is higher in the soils that formed under prairie vegetation than in the soils that formed under short grasses. Few of the soils on the Gulf Coast Prairies or cheniers have large accumulations of organic matter. Most have less than 2 percent in the surface layer, which generally has more organic matter than other parts of the profile. Allemands and Clovelly soils, which developed under aquatic vegetation in the marshes, have 60 to 70 percent organic matter, by weight, in the surface layer. The content of organic matter is typically lower in cultivated soils than in similar uncultivated soils. It can vary widely depending on use and management.

The role of vegetation in the leaching of plant nutrients is apparent in nearly all of the soils in the parish. The growing vegetation removes nutrients from the soil horizons and translocates many of them to the parts of the plant above ground. When the plant dies, these nutrients are released on the surface and in the surface layer. They can be absorbed again and used by growing plants. In soils that become highly leached and weathered, this process can considerably influence the quantity and distribution of bases over long periods. For example, base saturation and reaction can decrease as the depth to less leached and weathered zones increases.

Differences in the amount of organic matter that has accumulated in and on the soils are influenced by the kind and number of micro-organisms. Using oxygen from the air, aerobic organisms decompose organic matter through rapid oxidation. These organisms are most abundant and prevail for long periods in the better drained and aerated soils, such as Cheniere and Hackberry soils. Anaerobic organisms are dominant in the more poorly drained soils for long periods during the year. They do not require oxygen from the air, and they decompose organic residue very slowly. The different rates of decomposition can result in a higher content of organic matter in the poorly drained soils than in the better drained soils.

Relief

The major physiographic features in Vermilion Parish are described under the heading "Landforms and Surface Geology." Relief and other physiographic features influence soil formation through their effects on drainage, runoff, erosion, deposition, and exposure to the sun and wind.

The relief in Vermilion Parish influences runoff rate, drainage, and depth to and duration of a seasonal high water table. Generally, the higher the relief and the greater the degree of dissection by streams, the greater the geological age of a landform. For example, relief is higher on land surfaces of the Prairie Formation (late Pleistocene age) than on marshes of Holocene age. If other soil-forming factors, such as parent material and time, are comparable, the steeper soils are better drained, have faster runoff, are more subject to erosion, have thinner A and B horizons, are leached to a lesser degree, and have a seasonal high water table at a greater depth than the less sloping soils. The very gently sloping Coteau soils are an example of the steeper soils, and the level Frost soils are an example of the less sloping soils.

Parent Material and Time

Parent material is the unconsolidated mass in which soil forms. Its effects are particularly expressed as differences in soil color, texture, permeability, and degree of leaching. Parent material also has a major influence on the mineralogy of the soils and is a significant factor in determining the susceptibility of the soils to erosion.

Parent material and time are independent factors of soil formation. The parent material is exposed to the processes of soil formation for periods ranging from a few years to more than a million years. The length of time influences the kinds of soil horizons and their degree of expression. Long periods are generally required for the formation of prominent horizons. The possible differences in the length of time that the processes of soil formation have been active amount to several thousand years for some of the soils in Vermilion Parish.

The soils in the parish formed in various kinds of parent material ranging in age from the most recent deposits along beaches and in marshes to the late Pleistocene sediments that form the core of the uplands and the Gulf Coast Prairies. The characteristics, distribution, and depositional pattern of the different kinds of parent material are described in detail under the heading "Landforms and Surface Geology."

Landforms and Surface Geology

Vermilion Parish consists of two general physiographic areas—the Prairie Formation and the Chenier Plain Marsh. Each area makes up about 50 percent of the total land area. In most places the two areas merge almost imperceptibly at an elevation ranging from about 1 to 3 feet above mean sea level. Each area can be further subdivided into two or three subareas, which are distinguished by differences in parent material, physiographic features, or both.

The surface features of the land and the nature and distribution of the materials in which the soils formed are the result of events that occurred during and after the late Pleistocene Epoch *(12, 16)*. The major surface features, geological nature, and relative ages of the Prairie Formation and the Chenier Plain Marsh are described in the following paragraphs.

Prairie Formation

The Prairie Formation makes up the Gulf Coast Prairies and the uplands in the northern half of Vermilion Parish *(19)*. Maximum surface elevation of this formation ranges from near sea level along all of the southern edge of the formation, where it dips under the marshes, to about 25 feet near the northeastern corner of the parish. The formation generally slopes to the southwest. It is a coast-trending terrace that formed along the ancient Mississippi River. Relict alluvial morphology of most of the surface of the formation is analogous to that of the alluvial plain of the modern Mississippi River.

The eastern half of the Prairie Formation consists of alluvium of the ancient Mississippi River that is mantled with Peorian loess. This area is in the Patoutville-Frost, Coteau-Frost, and Jeanerette-Patoutville general soil map units. The western half of the formation consists entirely of alluvium of the ancient Mississippi River. This area is in the Crowley-Mowata general soil map unit. The southern part of the formation, where surface elevation is the lowest, is covered by loamy and clayey material of marine origin, lacustrine origin, or both. This material covers both the alluvium of Prairie age in the western part of the parish and the loess mantle in the eastern part. This southern part of the formation is in the Kaplan-Midland-Judice general soil map unit.

The material of the Prairie Formation is the oldest parent material exposed in the parish and may have been deposited as much as 80,000 years ago *(12)*. Acadia, Crowley, Morey, and Mowata soils formed in this material. Acadia, Crowley, and Mowata soils are highly weathered and leached. Acadia soils are on eroding surfaces parallel to streams. Crowley soils are on broad, level to slightly convex, distributary surfaces. Mowata soils are in broad concave areas between the distributary ridges. Morey soils are in landscape positions that are lower than those of Crowley soils and similar to or higher than those of Mowata soils. In places Morey soils have concretions of calcium carbonate in the solum and have a black or very dark grayish brown surface layer.

Field investigations conducted during the survey indicate that the Prairie Formation, throughout most of the eastern half of the parish, is mantled by uniformly textured silty deposits that have a very low content of sand. The mantle of silty deposits is considered loess by most geologists and pedologists *(27)*. This loess is considered to be less than 12,000 years old. The Trappey Mastodon *(11)*, discovered in Lafayette, was located at the contact point of the loess and the Prairie Formation. It was dated to be about 12,000 years old. Coteau, Frost, Frozard, Jeanerette, Memphis, and Patoutville soils formed in the loess mantle. Coteau, Frost, Memphis, and Patoutville soils are extensively weathered. Coteau, Memphis, and Patoutville soils are on convex landforms. Frost soils are in flat or concave areas and in drainageways. Jeanerette and Frozard soils are in concave areas at the toe slopes of Coteau, Memphis, and Patoutville soils. Jeanerette and Frozard soils have concretions of calcium carbonate in the solum. Jeanerette soils have a black or very dark grayish brown surface layer.

The southern or lower edge of the Prairie Formation is covered by a layer of material that generally is more clayey than the surficial deposits of the Prairie Formation. The origin of this material is either marine, lacustrine, or both. The material is younger than the loess mantle. Investigations conducted during the survey indicate that sea level surpassed its present height after the loess was deposited. Judice, Kaplan, and Midland soils formed in these marine and lacustrine deposits. Field investigations indicate that Frozard and Jeanerette soils in areas of the loess have been

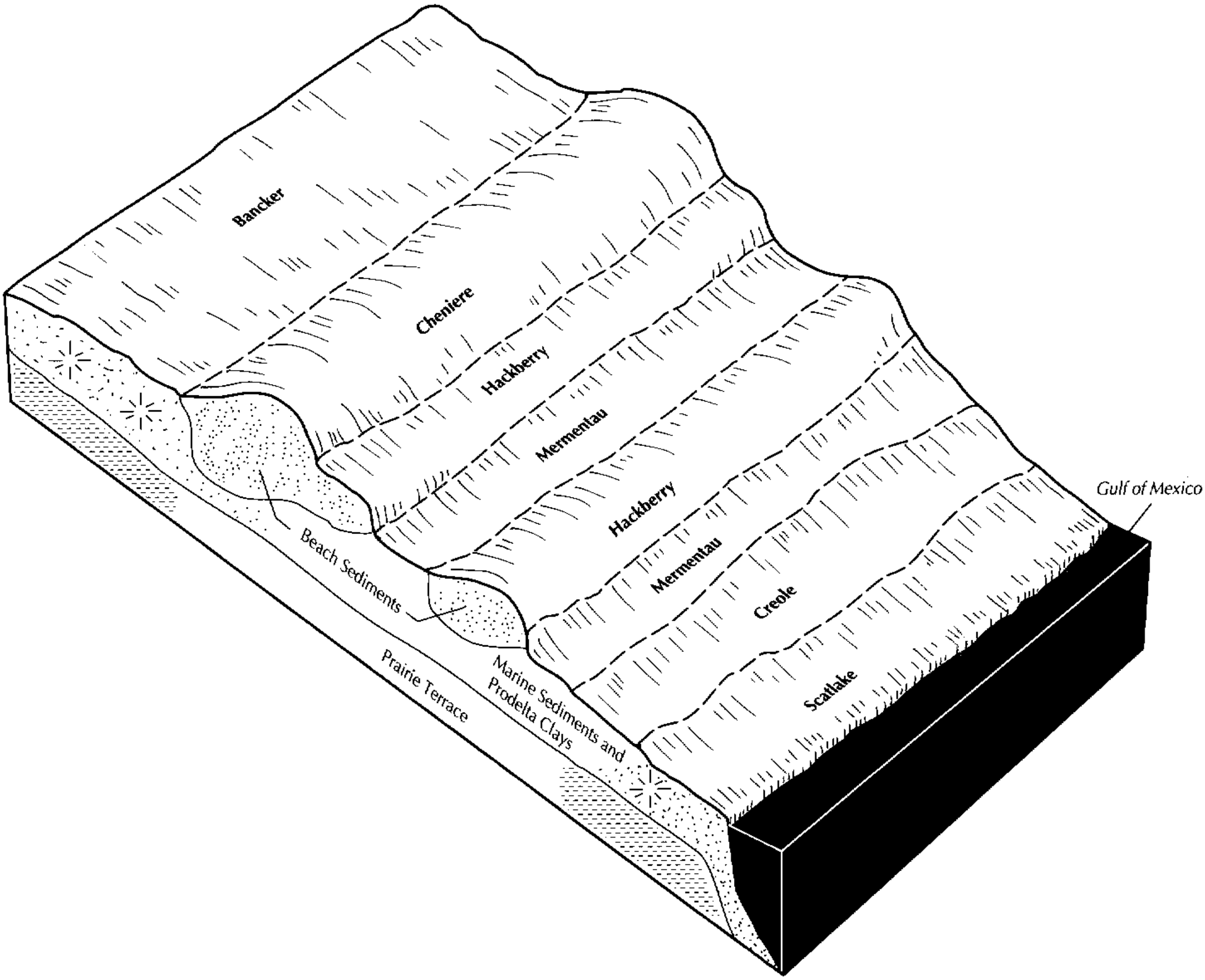

Figure 5.—Relationship of the soils, landscape positions, and parent materials in the Chenier Plain Marsh.

similarly altered by the marine intrusion or lacustrine intrusion, or both. Frozard and Jeanerette soils are not highly weathered or leached. In most places they have calcium carbonate in the solum.

Chenier Plain Marsh

Most of the marshes in Vermilion Parish resulted from the inundation of the Prairie Formation, which occurred when sea level maintained its present elevation.

The Chenier Plain Marsh can be subdivided into three areas of marshes. These areas are freshwater marshes, brackish marshes, and saline marshes.

The freshwater marshes are interior marshes and are mainly in a large area surrounding White Lake. They are between the Prairie Formation and the Pecan Island cheniers. Allemands and Larose soils are the dominant soils in the freshwater marshes. Allemands soils are organic soils, and Larose soils are soft, mineral soils.

The brackish marshes are east of White Lake. They are along the gulf, behind Chenier au Tigre and Mulberry Islands, and in front of the Pecan Island cheniers. These marshes protect the freshwater marshes from intrusions of sea water. Clovelly, Lafitte, Bancker, and Creole soils are the dominant soils in the brackish marshes. Clovelly and Lafitte soils are dominantly organic soils. Bancker and Creole are dominantly soft, mineral soils. Clovelly and Lafitte soils are very fragile and easily damaged by erosion.

The saline marshes are along the gulf coast in the southeastern and the southwestern corners of the parish. Scatlake soils are dominant in these marshes. They are soft clayey soils.

The cheniers are characterized by ridges of sand and shell fragments. These ridges are parallel to the old shoreline of the gulf. Some of the ridges, such as Bill's Ridge, are along the present shoreline. Others, such as Pecan Island, are stranded at the interior of the marshes.

The cheniers of Vermilion Parish consist of two groups of ridges. The oldest is the Pecan Island group, and the youngest is the Chenier au Tigre and Mulberry Islands group. The latter group also includes Sand Ridge and Bill's Ridge. The dominant soils on the chenier ridges are Cheniere, Hackberry, and Mermentau soils (fig. 5). Cheniere soils are in the highest landscape positions on the ridges, and Hackberry soils are in the lower landscape positions. Mermentau soils are in low areas between the ridges. Cheniere and Hackberry soils consist mainly of shell fragments and sandy material. Mermentau soils are clayey in the upper part and sandy in the lower part.

The Vermilion River flows from north to south in the eastern part of the parish. The streambed cuts through the loess mantle and into the Prairie Formation. Field investigations that identify Dundee soils along the river between the towns of Perry and Bancker indicate that the Vermilion River transported alluvium of Bayou Teche age from the Mississippi River when the Teche Delta was actively being formed. The Vermilion River later transported alluvium from the Red River. The reddish soil, which can be seen in a few places, that is directly along the river is the origin of the name "Vermilion."

The soft clay in the forested swamps of the Big Woods and Bancker areas is Teche-age alluvium of the Mississippi River that was transported by the Vermilion River. Barbary and Fausse soils are in swamps of tupelo gum and cypress.

Gueydan soils are the dominant soils in large areas near the toe of the Prairie Formation where water has been removed by pumps. They formed when Allemands and Larose soils were drained.

Large Pleistocene (Prairie Formation) meander scars of the Mississippi River are the dominant landscape features in the eastern half of the parish. The meander scars are very evident in the vicinity of the communities of Big Woods, Bancker, Forked Island, and Cow Island. The natural levees of old streams are forested. The dominant soils on ridges in areas of the Big Woods and Bancker communities are Patoutville, Frost, and Jeanerette soils. The dominant soils in meander scars south and west of the Big Woods are Judice and Kaplan soils. Field investigations indicate that most of the meander scars in the lower areas of Cow Island and Forked Island have been covered by marine material, lacustrine material, or both. The dominant soils in the old channel scars in this area are Allemands, Larose, and Gueydan soils. Allemands and Larose soils are in freshwater marshes, and Gueydan soils are in areas where water has been removed by pumps.

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Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Bottom land. The normal flood plain of a stream, subject to flooding.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax vegetation. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Complex slope. Irregular or variable slope. Planning or constructing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are:

Loose.—Noncoherent when dry or moist; does not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed together into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material and tends to stretch somewhat and pull apart rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard; little affected by moistening.

Contour stripcropping. Growing crops in strips that follow the contour. Strips of grass or close-growing crops are alternated with strips of clean-tilled crops or summer fallow.

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—Water is removed from the soil very rapidly. Excessively drained soils are commonly very coarse textured, rocky, or shallow. Some are steep. All are free of the mottling related to wetness.

Somewhat excessively drained.—Water is removed from the soil rapidly. Many somewhat excessively drained soils are sandy and rapidly pervious. Some are shallow. Some are so steep that much of the water they receive is lost as runoff. All are free of the mottling related to wetness.

Well drained.—Water is removed from the soil readily, but not rapidly. It is available to plants throughout most of the growing season, and wetness does not inhibit growth of roots for significant periods during most growing seasons. Well drained soils are commonly medium textured. They are mainly free of mottling.

Moderately well drained.—Water is removed from the soil somewhat slowly during some periods. Moderately well drained soils are wet for only a short time during the growing season, but periodically they are wet long enough that most mesophytic crops are affected. They commonly have a slowly pervious layer within or directly below the solum or periodically receive high rainfall, or both.

Somewhat poorly drained.—Water is removed slowly enough that the soil is wet for significant periods during the growing season. Wetness markedly restricts the growth of mesophytic crops unless artificial drainage is provided. Somewhat poorly drained soils commonly have a slowly pervious layer, a high water table, additional water from seepage, nearly continuous rainfall, or a combination of these.

Poorly drained.—Water is removed so slowly that the soil is saturated periodically during the growing season or remains wet for long periods. Free water is commonly at or near the surface for long enough during the growing season that most mesophytic crops cannot be grown unless the soil is artificially drained. The soil is not continuously saturated in layers directly below plow depth. Poor drainage results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as fire, that exposes the surface.

Excess fines (in tables). Excess silt and clay in the soil. The soil is not a source of gravel or sand for construction purposes.

Excess salt (in tables). Excess water-soluble salts in the soil that restrict the growth of most plants.

Excess sodium (in tables). Excess exchangeable sodium in the soil. The resulting poor physical properties restrict the growth of plants.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water (geology). Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue at the surface of a mineral soil.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an O, A, or E horizon. The B horizon is, in part, a layer of transition from the overlying horizon to the underlying C horizon. The B horizon also has distinctive characteristics, such as accumulation of clay, sesquioxides, humus, or a combination of these; prismatic or blocky structure; redder or browner colors than those in the A horizon; or a combination of these. The combined A and B horizons are generally called the solum, or true soil. If a soil does not have a B horizon, the A horizon alone is the solum.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the A or B horizon. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, the Arabic numeral 2 precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated rock (unweathered bedrock) beneath the soil. The bedrock commonly underlies a C horizon but can be directly below an A or a B horizon.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A are soils having a high infiltration rate when thoroughly wet and having a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, are soils having a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a permanent high water table, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Increasers. Species in the climax vegetation that increase in amount as the more desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the plants that are the less palatable to livestock.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, invader plants follow disturbance of the surface.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

Leaching. The removal of soluble material from soil or other material by percolating water.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine grained material, dominantly of silt-sized particles, deposited by wind.

Low strength. The soil is not strong enough to support loads.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move through the profile. Permeability is measured as the number of inches per hour that water moves through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Subsurface tunnels or pipelike cavities are formed by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Range condition. The present composition of the plant community on a range site in relation to the potential natural plant community for that site. Range condition is expressed as excellent, good, fair, or poor on the basis of how much the present plant community has departed from the potential.

Rangeland. Land on which the potential climax vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Range site. An area of rangeland where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. A range site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other range sites in kind or proportion of species or total production.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Extremely acid	below 4.5
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Medium acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Mildly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Rooting depth (in tables). Shallow root zone. The soil is shallow over a layer that greatly restricts roots.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs the growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Seepage (in tables). The movement of water through the soil adversely affects the specified use.

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer or of the underlying material. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shrink-swell. The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75 feet.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slope (in tables). Slope is great enough that special practices are required to ensure satisfactory performance of the soil for a specific use.

Slow intake (in tables). The slow movement of water into the soil.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Small stones (in tables). Rock fragments less than 3 inches (7.6 centimeters) in diameter. Small stones adversely affect the specified use of the soil.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and plant and animal activities are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips or bands that provide vegetative barriers to wind erosion and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind erosion and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Breaking up a compact subsoil by pulling a special chisel through the soil.

Substratum. The part of the soil below the solum.

Subsurface layer. Technically, the E horizon. Generally refers to a leached horizon lighter in color and lower in organic matter content than the overlying surface layer.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer" or the "Ap horizon."

Terrace. An embankment, or ridge, constructed on the contour or at a slight angle to the contour across sloping soils. The terrace intercepts surface runoff, so that water soaks into the soil or flows slowly to a prepared outlet.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay.* The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). An otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Tables

TABLE 1.--TEMPERATURE AND PRECIPITATION

(Recorded in the period 1951-81 at Vermilion Lock, Louisiana)

Month	Temperature: Average daily maximum	Temperature: Average daily minimum	Temperature: Average	Temperature: 2 years in 10 will have-- Maximum temperature higher than--	Temperature: 2 years in 10 will have-- Minimum temperature lower than--	Temperature: Average number of growing degree days*	Precipitation: Average	Precipitation: 2 years in 10 will have-- Less than--	Precipitation: 2 years in 10 will have-- More than--	Precipitation: Average number of days with 0.10 inch or more	Precipitation: Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	60.2	40.2	50.2	78	20	165	4.23	1.91	6.21	6	0.1
February----	62.9	42.2	52.6	79	24	163	4.18	1.51	6.39	6	.3
March-------	69.5	49.4	59.5	82	29	312	3.64	1.45	5.47	5	.0
April-------	76.5	58.6	67.6	87	40	528	4.36	1.48	6.73	4	.0
May---------	82.7	65.1	73.9	91	50	741	4.09	1.68	6.11	5	.0
June--------	88.2	70.8	79.5	95	59	885	5.06	1.99	7.64	6	.0
July--------	90.0	72.4	81.2	97	66	967	8.59	5.92	11.03	11	.0
August------	89.8	71.7	80.8	96	64	955	7.10	4.11	9.75	11	.0
September---	86.9	67.5	77.2	94	51	816	5.85	2.66	8.58	7	.0
October-----	80.0	56.0	68.0	90	38	558	3.32	.77	5.34	4	.0
November----	70.2	47.2	58.7	85	26	282	3.72	1.12	5.83	5	.0
December----	63.7	41.9	52.8	80	22	151	4.81	2.70	6.67	7	.0
Yearly:											
Average---	76.7	56.9	66.8	---	---	---	---	---	---	---	---
Extreme---	---	---	---	97	19	---	---	---	---	---	---
Total-----	---	---	---	---	---	6,523	58.95	49.60	68.21	77	.4

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (50 degrees F).

TABLE 2.--FREEZE DATES IN SPRING AND FALL

(Recorded in the period 1951-81 at Vermilion Lock, Louisiana)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Feb. 16	Mar. 11	Mar. 22
2 years in 10 later than--	Feb. 4	Mar. 1	Mar. 13
5 years in 10 later than--	Jan. 13	Feb. 10	Feb. 24
First freezing temperature in fall:			
1 year in 10 earlier than--	Dec. 2	Dec. 13	Nov. 6
2 years in 10 earlier than--	Dec. 12	Dec. 22	Nov. 13
5 years in 10 earlier than--	Dec. 31	Dec. 9	Nov. 26

TABLE 3.--GROWING SEASON

(Recorded in the period 1951-81 at Vermilion Lock, Louisiana)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	Days	Days
9 years in 10	305	266	243
8 years in 10	317	278	254
5 years in 10	354	300	274
2 years in 10	>365	324	295
1 year in 10	>365	338	305

TABLE 4.--SUITABILITY AND LIMITATIONS OF GENERAL SOIL MAP UNITS FOR MAJOR LAND USES

Map unit	Percent of area	Cultivated crops	Pasture	Urban uses	Intensive recreational areas
Patoutville Frost	11	Moderately well suited:[1] wetness, medium fertility, slope.	Well suited[2]	Moderately well suited:[3] wetness, slow permeability, shrink-swell, low strength for roads.	Moderately well suited:[3] wetness, slow permeability, erodes easily.
Coteau-Frost	3	Well suited[4]	Well suited[5]	Moderately well suited:[3] wetness, shrink-swell, slow and moderately slow permeability, low strength for roads.	Moderately well suited:[3] wetness, slow and moderately slow permeability, erodes easily.
Jeanerette-Patoutville	6	Well suited	Well suited	Poorly suited:[6] wetness, slow and moderately slow permeability, shrink-swell, low strength for roads.	Poorly suited:[6] wetness, slow and moderately low permeability, erodes easily.
Crowley-Mowata	13	Moderately well suited: wetness, low fertility, slope.	Well suited	Poorly suited: wetness, very slow permeability, shrink-swell, low strength for roads.	Poorly suited: wetness, very slow permeability, erodes easily.
Kaplan-Midland-Judice	17	Moderately well suited:[7] wetness, slope, poor tilth, medium fertility.	Well suited	Poorly suited: wetness, flooding, shrink-swell, very slow permeability.	Poorly suited: wetness, flooding, slow and very slow permeability, shrink-swell, erodes easily.
Barbary-Fausse	1	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low strength for roads, shrink-swell, subsidence potential, very slow permeability.	Not suited: flooding, ponding, low strength for roads, subsidence potential, very slow permeability.
Basile	1	Not suited: flooding, wetness.	Poorly suited: flooding, wetness.	Not suited: flooding, wetness, slow permeability, shrink-swell, low strength for roads.	Not suited: flooding, wetness, slow permeability.

See footnotes at end of table.

TABLE 4.--SUITABILITY AND LIMITATIONS OF GENERAL SOIL MAP UNITS FOR MAJOR LAND USES--Continued

Map unit	Percent of area	Cultivated crops	Pasture	Urban uses	Intensive recreational areas
Allemands-Larose	21	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.
Clovelly-Lafitte	10	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.
Bancker-Creole	8	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.
Scatlake	3	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low load support.	Not suited: flooding, ponding, low strength.	Not suited: flooding, ponding, low strength.
Gueydan	5	Poorly suited: wetness, acidity.	Poorly suited: wetness, acidity.	Poorly suited: wetness, flooding, shrink-swell, low strength, very slow permeability.	Poorly suited: wetness, flooding, very slow permeability.
Mermentau-Hackberry	1	Not suited:[8] wetness, flooding.	Poorly suited:[8] wetness, flooding.	Poorly suited: wetness, flooding, very slow permeability, salinity, shrink-swell, seepage, cutbanks cave.	Poorly suited: wetness, flooding, very slow permeability, salinity.

1 The occasionally flooded Frost soils are poorly suited.
2 Some of the Frost soils are moderately well suited because of occasional flooding.
3 The Frost soils are poorly suited because of wetness and flooding.
4 The Frost soils are moderately well suited or poorly suited because of wetness and flooding.
5 The occasionally flooded Frost soils are moderately well suited.
6 The Patoutville soils are moderately well suited.
7 The Kaplan soils are well suited.
8 The Hackberry soils are moderately well suited.

TABLE 5.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
Aa	Acadia silt loam, 1 to 3 percent slopes	889	0.1
AE	Allemands mucky peat	116,447	10.3
AG	Andry muck	3,336	0.3
Ah	Andry muck, drained	2,196	0.2
AN	Aquents, frequently flooded	1,785	0.2
BA	Bancker muck	50,321	4.4
BB	Barbary muck	7,261	0.7
BE	Basile silt loam, frequently flooded	2,903	0.3
Bh	Beach, coastal	519	*
Ch	Cheniere sandy clay loam, 1 to 3 percent slopes	605	0.1
CL	Clovelly muck	49,089	4.4
Cm	Coteau silt loam, 0 to 1 percent slopes	2,994	0.3
Cn	Coteau silt loam, 1 to 3 percent slopes	8,773	0.8
Co	Coteau-Patoutville-Frost silt loams, gently undulating	9,520	0.9
CR	Creole muck	14,008	1.3
Cw	Crowley silt loam, 0 to 1 percent slopes	47,752	4.3
Cx	Crowley silt loam, 1 to 3 percent slopes	1,496	0.1
Cy	Crowley-Patoutville silt loams	18,233	1.6
DE	Delcomb muck	7,526	0.7
Du	Dundee very fine sandy loam	1,753	0.2
FA	Fausse clay	2,735	0.2
Fo	Frost silt loam	19,034	1.7
Fr	Frost silt loam, occasionally flooded	4,158	0.4
Fz	Frozard silt loam	4,526	0.4
GE	Ged clay	5,768	0.5
Gy	Gueydan muck	44,746	4.0
Hb	Hackberry sandy clay loam, overwash	214	*
Hm	Hackberry-Mermentau complex, gently undulating	1,952	0.2
Ja	Jeanerette silt loam	28,535	2.6
Jd	Judice silty clay loam	27,226	2.4
Jk	Judice-Kaplan complex, gently undulating	5,086	0.5
Ka	Kaplan silt loam	50,646	4.5
LF	Lafitte muck	27,977	2.5
LR	Larose mucky clay	36,120	3.2
Me	Memphis silt loam, 1 to 5 percent slopes	689	0.1
MM	Mermentau clay	6,533	0.6
Mn	Midland silty clay loam	38,868	3.5
Mr	Morey silt loam	3,079	0.3
Mt	Mowata silt loam	36,344	3.3
Pa	Patoutville silt loam, 0 to 1 percent slopes	57,091	5.1
Pb	Patoutville silt loam, 1 to 3 percent slopes	4,385	0.4
SC	Scatlake mucky clay	27,783	2.5
UD	Udifluvents, 1 to 20 percent slopes	2,459	0.2
	Water	332,171	29.7
	Total	1,115,531	100.0

* Less than 0.1 percent.

TABLE 6.--PRIME FARMLAND

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
Aa	Acadia silt loam, 1 to 3 percent slopes (where adequately drained)
Cm	Coteau silt loam, 0 to 1 percent slopes
Cn	Coteau silt loam, 1 to 3 percent slopes
Co	Coteau-Patoutville-Frost silt loams, gently undulating (where adequately drained)
Cw	Crowley silt loam, 0 to 1 percent slopes (where adequately drained)
Cx	Crowley silt loam, 1 to 3 percent slopes
Cy	Crowley-Patoutville silt loams
Du	Dundee very fine sandy loam
Fo	Frost silt loam (where adequately drained)
Ja	Jeanerette silt loam (where adequately drained)
Jd	Judice silty clay loam (where adequately drained)
Jk	Judice-Kaplan complex, gently undulating (where adequately drained)
Ka	Kaplan silt loam (where adequately drained)
Me	Memphis silt loam, 1 to 5 percent slopes
Mn	Midland silty clay loam (where adequately drained)
Mr	Morey silt loam (where adequately drained)
Mt	Mowata silt loam (where adequately drained)
Pa	Patoutville silt loam, 0 to 1 percent slopes
Pb	Patoutville silt loam, 1 to 3 percent slopes

TABLE 7.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE

(Yields in the N columns are for nonirrigated soils; those in the I columns are for irrigated soils. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Soil name and map symbol	Land capability	Rice	Soybeans	Corn	Common bermudagrass	Improved bermudagrass
	N	I	N	N	N	N
		Bu	Bu	Bu	AUM*	AUM*
Aa----------------- Acadia	IIIe	100	27	---	5.0	---
AE----------------- Allemands	VIIIw	---	---	---	---	---
AG----------------- Andry	VIIw	---	---	---	---	---
Ah----------------- Andry	Vw	110	---	---	6.0	7.5
AN**--------------- Aquents	VIIw	---	---	---	---	---
BA----------------- Bancker	VIIIw	---	---	---	---	---
BB----------------- Barbary	VIIw	---	---	---	---	---
BE----------------- Basile	Vw	---	---	---	4.0	---
Bh**. Beach, coastal						
Ch----------------- Cheniere	IIIs	---	---	---	5.5	5.5
CL----------------- Clovelly	VIIIw	---	---	---	---	---
Cm----------------- Coteau	IIw	110	35	90	5.5	9.5
Cn----------------- Coteau	IIe	---	32	90	5.5	9.5
Co-----------------		---	31	85	5.1	9.0
Coteau------------	IIe					
Patoutville-------	IIe					
Frost-------------	IIIw					
CR----------------- Creole	VIIw	---	---	---	---	---
Cw----------------- Crowley	IIIw	130	30	85	5.5	8.5
Cx----------------- Crowley	IIIe	120	25	90	5.5	8.5
Cy-----------------		127	32	90	5.5	9.0
Crowley-----------	IIIw					
Patoutville-------	IIw					

See footnotes at end of table.

TABLE 7.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Rice	Soybeans	Corn	Common bermudagrass	Improved bermudagrass
	N	I	N	N	N	N
		Bu	Bu	Bu	AUM*	AUM*
DE----------------- Delcomb	VIIIw	---	---	---	---	---
Du----------------- Dundee	IIw	105	40	95	6.5	9.0
FA----------------- Fausse	VIIw	---	---	---	---	---
Fo----------------- Frost	IIIw	105	30	80	4.2	---
Fr----------------- Frost	IVw	105	25	---	4.2	---
Fz----------------- Frozard	IIIw	110	20	75	5.0	8.0
GE----------------- Ged	VIIw	---	---	---	---	---
Gy----------------- Gueydan	IIIw	105	25	---	6.0	7.5
Hb----------------- Hackberry	IIIw	---	25	75	7.0	---
Hm-----------------		---	---	---	7.5	8.0
Hackberry---------	IIIe					
Mermentau---------	VIIw					
Ja----------------- Jeanerette	IIw	110	35	95	6.1	9.0
Jd----------------- Judice	IIIw	120	35	---	6.5	8.5
Jk-----------------		110	34	85	6.5	9.0
Judice------------	IIIw					
Kaplan------------	IIe					
Ka----------------- Kaplan	IIw	125	33	90	6.5	9.0
LF----------------- Lafitte	VIIIw	---	---	---	---	---
LR----------------- Larose	VIIw	---	---	---	---	---
Me----------------- Memphis	IIe	---	40	95	7.5	10.0
MM----------------- Mermentau	VIIw	---	---	---	---	---
Mn----------------- Midland	IIIw	120	30	80	6.5	8.0
Mr----------------- Morey	IIIw	120	35	75	7.0	8.5

See footnotes at end of table.

TABLE 7.--LAND CAPABILITY AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Soil name and map symbol	Land capability	Rice	Soybeans	Corn	Common bermudagrass	Improved bermudagrass
	N	I	N	N	N	N
		Bu	Bu	Bu	AUM*	AUM*
Mt----------------- Mowata	IIIw	120	30	80	6.1	8.0
Pa----------------- Patoutville	IIw	120	35	90	5.5	9.0
Pb----------------- Patoutville	IIe	---	30	90	5.5	9.0
SC----------------- Scatlake	VIIIw	---	---	---	---	---
UD----------------- Udifluvents	VIe	---	---	---	---	---

* Animal unit month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 8.--NATIVE PLANTS ON SELECTED SOILS IN AREAS OF MARSH

(An asterisk indicates the most common plants on each type of marsh)

Type of marsh	Soil name	Scientific name	Common name
Brackish	Andry, Bancker, Clovelly, Creole, Delcomb, Lafitte, Mermentau	Amaranthus cuspidata	Southern waterhemp
		Aster tenuifolius	Saline aster
		Bacopa monnieri	*Coastal waterhyssop
		Cyperus odoratus	Fragrant flatsedge
		Distichlis spicata	Seashore saltgrass
		Echinochloa walteri	Coast cockspur
		Eleocharis parvula	*Dwarf spikesedge
		Hibiscus lasiocarpus	Woolly rosemallow
		Iopomoea sagittata	*Saltmarsh morningglory
		Juncus roemeranus	Needlegrass rush
		Kosteletzkya virginica	Virginia saltmarsh mallow
		Leptochloa fascicularis	Bearded sprangletop
		Lythrum lineare	Wand lythrum
		Paspalum lividum	Longtom
		Paspalum vaginatum	*Seashore paspalum
		Phragmites communis	*Common reed
		Pluchea camphorata	Camphor pluchea
		Potamogeton pectinatus	Sago pondweed
		Ruppia maritima	Widgeongrass
		Scirpus olneyi	*Olney bulrush
		Scirpus robustus	*Saltmarsh bulrush
		Spartina alterniflora	Smooth cordgrass
		Spartina cynosuroides	Big cordgrass
		Spartina patens	*Marshhay cordgrass
		Spartina spartinae	Gulf cordgrass
		Vigna luteola	Hairypod cowpea
Freshwater	Allemands, Ged, Larose	Alternanthera philoxeroides	*Alligatorweed
		Andropogon glomeratus	Bushy bluestem
		Axonopus affinis	Common carpetgrass
		Baccharis halimifolia	Eastern baccharis
		Bacopa caroliniana	Carolina waterhyssop
		Bidens laevis	Smooth beggartick
		Carex	Sedge
		Cerotophyllum demersum	Coontail
		Claduim jamaicense	Jamaica sawgrass
		Colocasia esculenta	Elephant's ear
		Cynodon dactylon	Common bermudagrass
		Dichromena colorata	Starbrush (white-topped sedge)
		Echinochloa crusgalli	Barnyardgrass
		Echinochloa walteri	Coast cockspur
		Eclipta alba	Eclipta
		Eichhornia crassipes	Water hyacinth
		Eleocharis quadrangulata	Squarestem spikerush
		Hydrocotyle ranunculoides	Floating pennywort
		Hymenocallis liriosme	Spiderlily
		Hypericum virginicum	Marsh Johnswort
		Iva ciliata	Seacoast sumpweed
		Iva frutescens	Bigleaf sumpweed
		Juncus effusus	*Common rush
		Leersia oryzoides	Rice cutgrass
		Lemna minor	Common duckweed
		Leptochloa	Sprangletop
		Ludwigia repens	Creeping seedbox
		Magnolia virginiana	Sweetbay
		Mimosa strigillosa	Herbaceous mimosa
		Najas guadalupensis	Southern waternymph
		Nuphar advena	Spatterdock cowlily

TABLE 8.--NATIVE PLANTS ON SELECTED SOILS IN AREAS OF MARSH--Continued

Type of marsh	Soil name	Scientific name	Common name
Freshwater (continued)		Nymphaea odorata	American waterlily
		Panicum	Panicgrass
		Panicum hemitomon	*Maidencane
		Panicum virgatum	Switchgrass
		Paspalum lividum	Longtom
		Phanopyrum gymnocarpon	Savannah panicum
		Phragmites communis	Common reed
		Polygonum hydropiperoides	*Swamp knotweed
		Pontederia cordata	*Pickerelweed
		Sacciolepis striata	American cupscale
		Sagittaria	Arrowhead
		Sagittaria lancifolia	*Bulltongue
		Sagittaria platyphylla	Delta arrowhead
		Saururus cernuus	Lizards tail
		Scirpus californicus	California bulrush
		Scirpus validus	Softstem bulrush
		Sesbania drummondii	Rattlebox
		Sesbania exaltata	Hemp seebania
		Setaria magna	Giant bristlegrass
		Solidago	Goldenrod
		Sphenoclea zeylanica	Chicken-spike
		Tripsacum dactyloides	Eastern gamagrass
		Typha	*Cattail
		Zizaniopsis miliacea	Southern wildrice (giant cutgrass)
Saline	Scatlake	Batis maritima	*Saltwort
		Borrichia frutescens	*Bushy seaoxeye
		Croton punctatus	Gulf croton
		Distichlis spicata	*Seashore saltgrass
		Iva frutescens	Bigleaf sumpweed
		Juncus roemeranus	*Needlegrass rush
		Salicornia virginica	Virginia swampfire
		Spartina alterniflora	*Smooth cordgrass
		Spartina patens	*Marshhay cordgrass

TABLE 9.--WOODLAND MANAGEMENT AND PRODUCTIVITY

(Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available)

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Aa-------------- Acadia	9W	Slight	Moderate	Slight	Severe	Loblolly pine-------	86	9	Loblolly pine, slash pine.
						Slash pine----------	86	11	
						Longleaf pine-------	70	6	
						Sweetgum------------	80	6	
						Water oak-----------	80	5	
BB-------------- Barbary	4W	Slight	Severe	Severe	Slight	Baldcypress---------	80	4	Baldcypress.
						Water tupelo--------	60	6	
						Black willow--------	---	---	
BE-------------- Basile	4W	Slight	Severe	Severe	Moderate	Sweetgum------------	65	4	Sweetgum, overcup oak, eastern cottonwood, American sycamore.
						Baldcypress---------	---	---	
						Laurel oak----------	---	---	
						Overcup oak---------	---	---	
Cm, Cn---------- Coteau	11W	Slight	Moderate	Slight	Severe	Loblolly pine-------	100	11	Loblolly pine, slash pine.
						Slash pine----------	---	---	
						Water oak-----------	90	6	
						Cherrybark oak------	90	8	
Co**:									
Coteau---------	11W	Slight	Moderate	Slight	Severe	Loblolly pine-------	100	11	Loblolly pine, slash pine.
						Slash pine----------	---	---	
						Water oak-----------	90	6	
						Cherrybark oak------	90	8	
Patoutville----	10W	Slight	Moderate	Slight	Severe	Loblolly pine-------	95	10	Loblolly pine, slash pine.
						Slash pine----------	95	12	
						Sweetgum------------	86	7	
						Water oak-----------	---	---	
						Cherrybark oak------	93	9	
Frost----------	9W	Slight	Severe	Moderate	Severe	Loblolly pine-------	90	9	Loblolly pine, slash pine.
						Cherrybark oak------	85	7	
						Water oak-----------	---	---	
						Slash pine----------	90	11	
						Sweetgum------------	---	---	
Cw, Cx---------- Crowley	11W	Slight	Severe	Moderate	Severe	Slash pine----------	90	11	Slash pine, loblolly pine.
						Loblolly pine-------	90	9	
Cy**:									
Crowley--------	11W	Slight	Severe	Moderate	Severe	Slash pine----------	90	11	Slash pine, loblolly pine.
						Loblolly pine-------	90	9	
Patoutville----	10W	Slight	Moderate	Slight	Severe	Loblolly pine-------	95	10	Loblolly pine, slash pine.
						Slash pine----------	95	12	
						Sweetgum------------	86	7	
						Water oak-----------	---	---	
						Cherrybark oak------	93	9	

See footnotes at end of table.

TABLE 9.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Du: Dundee	12W	Slight	Moderate	Slight	Moderate	Cherrybark oak	105	12	Cherrybark oak, eastern cottonwood, sweetgum, water oak.
						Eastern cottonwood	100	9	
						Sweetgum	100	10	
						Water oak	95	6	
FA: Fausse	6W	Slight	Severe	Severe	Moderate	Baldcypress	96	6	Baldcypress.
						Water hickory	---	---	
						Water tupelo	---	---	
						Overcup oak	---	---	
						Black willow	---	---	
						Red maple	---	---	
Fo, Fr: Frost	9W	Slight	Severe	Moderate	Severe	Loblolly pine	90	9	Loblolly pine, slash pine.
						Cherrybark oak	85	7	
						Water oak	---	---	
						Slash pine	90	11	
						Sweetgum	---	---	
Fz: Frozard	2W	Slight	Moderate	Slight	Moderate	Green ash	70	2	Sweetgum, water oak, green ash.
						Sweetgum	85	6	
						Water oak	85	6	
Ja: Jeanerette	4W	Slight	Moderate	Moderate	Severe	Green ash	80	4	Eastern cottonwood, American sycamore, green ash, cherrybark oak.
						Eastern cottonwood	120	13	
						Water oak	---	---	
						Pecan	---	---	
						American sycamore	---	---	
						Cherrybark oak	90	8	
Jd: Judice	7W	Slight	Severe	Severe	Severe	Cherrybark oak	85	7	American sycamore, cherrybark oak, green ash.
						Water oak	---	---	
						Sweetgum	---	---	
						Eastern cottonwood	100	9	
Jk**:									
Judice	7W	Slight	Severe	Severe	Severe	Cherrybark oak	85	7	American sycamore, green ash, sweetgum, water oak.
						Water oak	---	---	
						Sweetgum	---	---	
						Eastern cottonwood	100	9	
Kaplan	6W	Slight	Moderate	Slight	Severe	Water oak	90	6	Water oak, sweetgum, green ash.
						Sweetgum	90	7	
						Green ash	---	---	
Ka: Kaplan	6W	Slight	Moderate	Slight	Severe	Water oak	90	6	Green ash, water oak, sweetgum.
						Sweetgum	90	7	
						Green ash	---	---	
Me: Memphis	12A	Slight	Slight	Slight	Slight	Loblolly pine	105	12	Cherrybark oak, sweetgum, loblolly pine, slash pine.
						Cherrybark oak	100	10	
						Sweetgum	90	7	
Mn: Midland	4W	Slight	Severe	Moderate	Severe	Green ash	85	4	Green ash, water oak, sweetgum.
						Water oak	90	6	
						Sweetgum	90	7	

See footnotes at end of table.

TABLE 9.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Soil name and map symbol	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Management concerns: Plant competition	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class*	Trees to plant
Mr-------------- Morey	9W	Slight	Severe	Severe	Severe	Loblolly pine------- Longleaf pine------- Southern red oak----	90 80 80	9 7 4	Loblolly pine, slash pine, green ash, sweetgum.
Mt-------------- Mowata	9W	Slight	Severe	Moderate	Severe	Loblolly pine------- Slash pine---------- Sweetgum------------	90 90 90	9 11 7	Loblolly pine, slash pine, sweetgum.
Pa, Pb---------- Patoutville	10W	Slight	Moderate	Slight	Severe	Loblolly pine------- Slash pine---------- Sweetgum------------ Water oak----------- Cherrybark oak------	95 95 86 --- 93	10 12 7 --- 9	Loblolly pine, slash pine.

* Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands.

** See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 10.--RECREATIONAL DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Aa: Acadia	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
AE: Allemands	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
AG: Andry	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus, excess salt.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess salt, ponding, flooding.
Ah: Andry	Severe: flooding, wetness, excess humus.	Severe: excess humus.	Severe: excess humus, wetness.	Severe: excess humus.	Severe: excess humus.
AN*. Aquents					
BA: Bancker	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly, excess humus.	Severe: wetness, flooding, excess humus.	Severe: wetness, excess humus.	Severe: wetness, flooding, excess humus.
BB: Barbary	Severe: flooding, ponding, percs slowly.	Severe: ponding, percs slowly.	Severe: ponding, flooding.	Severe: ponding.	Severe: ponding, flooding.
BE: Basile	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
Bh*. Beach, coastal					
Ch: Cheniere	Severe: flooding, too sandy.	Slight	Moderate: slope.	Slight	Severe: droughty, flooding.
CL: Clovelly	Severe: flooding, ponding, percs slowly.	Severe: ponding, excess humus, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: ponding, excess humus.	Severe: flooding, ponding, excess humus.
Cm: Coteau	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Cn: Coteau	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.

See footnote at end of table.

TABLE 10.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Co*:					
Coteau	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Patoutville	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Slight.
Frost	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
CR Creole	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, excess salt.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: excess salt, ponding, flooding.
Cw, Cx Crowley	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Cy*:					
Crowley	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Patoutville	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight	Slight.
DE Delcomb	Severe: flooding, ponding.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess salt, ponding, flooding.
Du Dundee	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
FA Fausse	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.
Fo, Fr Frost	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Fz Frozard	Severe: wetness.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
GE Ged	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, flooding, too clayey.

See footnote at end of table.

TABLE 10.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Gy------------------- Gueydan	Severe: flooding, wetness, percs slowly.	Severe: percs slowly.	Severe: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Hb------------------- Hackberry	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Hm*:					
Hackberry------------	Severe: flooding, wetness.	Moderate: wetness.	Severe: wetness.	Moderate: wetness.	Moderate: wetness, droughty.
Mermentau------------	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, excess salt.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: excess salt, wetness, flooding.
Ja------------------- Jeanerette	Severe: wetness, flooding.	Moderate: wetness, percs slowly.	Severe: wetness.	Moderate: wetness.	Moderate: wetness.
Jd------------------- Judice	Severe: wetness, percs slowly, flooding.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Jk*:					
Judice---------------	Severe: wetness, percs slowly, flooding.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Kaplan---------------	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Ka------------------- Kaplan	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
LF------------------- Lafitte	Severe: flooding, ponding, excess humus.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.	Severe: ponding, excess humus.	Severe: excess humus, ponding, flooding.
LR------------------- Larose	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, percs slowly.	Severe: too clayey, ponding, flooding.	Severe: ponding, too clayey.	Severe: ponding, too clayey, percs slowly.
Me------------------- Memphis	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
MM------------------- Mermentau	Severe: flooding, wetness, percs slowly.	Severe: wetness, too clayey, excess salt.	Severe: too clayey, wetness, flooding.	Severe: wetness, too clayey.	Severe: excess salt, wetness, flooding.

See footnote at end of table.

TABLE 10.--RECREATIONAL DEVELOPMENT--Continued

Soil name and map symbol	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Mn: Midland	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Mr: Morey	Severe: flooding.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness.	Moderate: wetness.
Mt: Mowata	Severe: flooding, wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.
Pa: Patoutville	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Slight	Slight.
Pb: Patoutville	Moderate: wetness, percs slowly.	Moderate: wetness, percs slowly.	Moderate: slope, wetness, percs slowly.	Slight	Slight.
SC: Scatlake	Severe: flooding, ponding, percs slowly.	Severe: ponding, too clayey, excess humus.	Severe: excess humus, ponding, too clayey.	Severe: ponding, too clayey, excess humus.	Severe: excess salt, ponding, flooding.
UD. Udifluvents					

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 11.--WILDLIFE HABITAT

(See text for definitions of "good," "fair," "poor," and "very poor." Absence of an entry indicates that the soil was not rated)

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Aa: Acadia	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
AE: Allemands	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Very poor.	Very poor.	Very poor.	Good.
AG: Andry	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Ah: Andry	Fair	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good.
AN*. Aquents											
BA: Bancker	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
BB: Barbary	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Good	Poor	Very poor.	Very poor.	Good.
BE: Basile	Poor	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good.
Bh*. Beach, coastal											
Ch: Cheniere	Fair	Good	Good	Fair	Fair	Fair	Very poor.	Very poor.	Good	Poor	Very poor.
CL: Clovelly	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Cm, Cn: Coteau	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Co*:											
Coteau	Fair	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Patoutville	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
Frost	Poor	Fair	Fair	Good	Good	Good	Good	Good	Fair	Good	Good.
CR: Creole	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Good	Very poor.	Very poor.	Fair.
Cw: Crowley	Fair	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Good.
Cx: Crowley	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Fair	Fair	Fair.
Cy*:											
Crowley	Fair	Fair	Fair	Fair	Good	Good	Good	Good	Fair	Fair	Good.
Patoutville	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.

See footnote at end of table.

TABLE 11.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements								Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
DE-----------------Delcomb	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Very poor.	Very poor.	Very poor.	Good.
Du-----------------Dundee	Fair	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
FA-----------------Fausse	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Poor	Good	Good	Very poor.	Poor	Good.
Fo, Fr-------------Frost	Poor	Fair	Fair	Good	Good	Good	Good	Good	Fair	Good	Good.
Fz-----------------Frozard	Fair	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
GE-----------------Ged	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Fair	Very poor.	Very poor.	Good.
Gy-----------------Gueydan	Fair	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good.
Hb-----------------Hackberry	Good	Good	Good	Fair	Poor	Fair	Poor	Very poor.	Fair	Fair	Poor.
Hm*:											
Hackberry---------	Good	Good	Good	Fair	Poor	Fair	Poor	Very poor.	Fair	Fair	Poor.
Mermentau---------	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Fair	Poor	Very poor.	Fair.
Ja-----------------Jeanerette	Good	Good	Good	Good	Fair	Good	Fair	Fair	Good	Good	Fair.
Jd-----------------Judice	Fair	Fair	Fair	Good	Fair	Good	Good	Good	Poor	Good	Good.
Jk*:											
Judice------------	Fair	Fair	Fair	Good	Fair	Good	Good	Good	Poor	Good	Good.
Kaplan------------	Fair	Good	Fair	Good	Fair	Good	Good	Good	Fair	Fair	Good.
Ka-----------------Kaplan	Fair	Good	Fair	Good	Fair	Good	Good	Good	Fair	Fair	Good.
LF-----------------Lafitte	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Very poor.	Very poor.	Very poor.	Good.
LR-----------------Larose	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
Me-----------------Memphis	Good	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
MM-----------------Mermentau	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Fair	Fair	Poor	Very poor.	Fair.
Mn-----------------Midland	Poor	Fair	Fair	Fair	Poor	Fair	Good	Good	Fair	Fair	Good.

See footnote at end of table.

TABLE 11.--WILDLIFE HABITAT--Continued

Soil name and map symbol	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Shrubs	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
Mr------------------ Morey	Fair	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
Mt------------------ Mowata	Poor	Fair	Good	Fair	Fair	Good	Good	Good	Fair	Fair	Good.
Pa, Pb-------------- Patoutville	Good	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
SC------------------ Scatlake	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Very poor.	Good	Good	Very poor.	Very poor.	Good.
UD. Udifluvents											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 12.--BUILDING SITE DEVELOPMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Aa: Acadia	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
AE: Allemands	Severe: excess humus, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, excess humus.
AG: Andry	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: low strength, ponding, flooding.	Severe: excess salt, ponding, flooding.
Ah: Andry	Severe: excess humus, wetness.	Severe: flooding, wetness, low strength.	Severe: low strength, flooding.	Severe: low strength.	Severe: excess humus.
AN*. Aquents					
BA: Bancker	Severe: excess humus, wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding, excess humus.
BB: Barbary	Severe: excess humus, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding.	Severe: ponding, flooding.
BE: Basile	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness, flooding.
Bh*. Beach, coastal					
Ch: Cheniere	Severe: cutbanks cave.	Severe: flooding.	Severe: flooding.	Moderate: flooding.	Severe: droughty.
CL: Clovelly	Severe: excess humus, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, excess humus.
Cm, Cn: Coteau	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
Co*:					
Coteau	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.

See footnote at end of table.

TABLE 12.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Co*:					
Patoutville	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
Frost	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Severe: wetness.
CR: Creole	Severe: cutbanks cave, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: excess salt, ponding, flooding.
Cw, Cx: Crowley	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Cy*:					
Crowley	Severe: wetness.	Severe: wetness, shrink-swell.	Severe: wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Patoutville	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
DE: Delcomb	Severe: excess humus, ponding.	Severe: flooding, ponding, low strength.	Severe: flooding, ponding, low strength.	Severe: ponding, flooding.	Severe: excess salt, ponding, flooding.
Du: Dundee	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Moderate: wetness.
FA: Fausse	Severe: ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: low strength, ponding, flooding.	Severe: ponding, flooding, too clayey.
Fo: Frost	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness.	Severe: wetness.
Fr: Frost	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: low strength, wetness, flooding.	Severe: wetness.
Fz: Frozard	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: low strength, wetness.	Moderate: wetness.
GE: Ged	Severe: ponding.	Severe: flooding, shrink-swell, ponding.	Severe: flooding, shrink-swell, ponding.	Severe: ponding, low strength, shrink-swell.	Severe: ponding, flooding, too clayey.

See footnote at end of table.

TABLE 12.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Gy: Gueydan	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: shrink-swell, low strength.	Moderate: wetness.
Hb: Hackberry	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Moderate: wetness, flooding.	Moderate: wetness, droughty.
Hm*:					
Hackberry	Severe: cutbanks cave, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Moderate: wetness, flooding.	Moderate: wetness, droughty.
Mermentau	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: excess salt, wetness, flooding.
Ja: Jeanerette	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.	Severe: low strength.	Moderate: wetness.
Jd: Judice	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Jk*:					
Judice	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Kaplan	Severe: wetness.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
Ka: Kaplan	Severe: wetness.	Moderate: shrink-swell.	Moderate: shrink-swell.	Severe: low strength, shrink-swell.	Moderate: wetness.
LF: Lafitte	Severe: excess humus, ponding.	Severe: flooding, ponding, subsides.	Severe: flooding, ponding, subsides.	Severe: subsides, ponding, flooding.	Severe: excess humus, ponding, flooding.
LR: Larose	Severe: excess humus, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Severe: low strength, ponding, flooding.	Severe: ponding, too clayey, percs slowly.
Me: Memphis	Slight	Slight	Slight	Severe: low strength.	Slight.
MM: Mermentau	Severe: wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: excess salt, wetness, flooding.

See footnote at end of table.

TABLE 12.--BUILDING SITE DEVELOPMENT--Continued

Soil name and map symbol	Shallow excavations	Dwellings without basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Mn: Midland	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Mr: Morey	Severe: wetness.	Severe: flooding.	Severe: flooding.	Severe: low strength.	Moderate: wetness.
Mt: Mowata	Severe: wetness.	Severe: flooding, wetness, shrink-swell.	Severe: flooding, wetness, shrink-swell.	Severe: low strength, wetness, shrink-swell.	Severe: wetness.
Pa, Pb: Patoutville	Severe: wetness.	Moderate: wetness, shrink-swell.	Moderate: wetness, shrink-swell.	Severe: low strength.	Slight.
SC: Scatlake	Severe: excess humus, ponding.	Severe: flooding, ponding, shrink-swell.	Severe: flooding, ponding, shrink-swell.	Severe: low strength, ponding, flooding.	Severe: excess salt, ponding, flooding.
UD. Udifluvents					

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 13.--SANITARY FACILITIES

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "good," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Aa------------------ Acadia	Severe: wetness, percs slowly.	Moderate: seepage, slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
AE------------------ Allemands	Severe: flooding, ponding, percs slowly.	Severe: flooding, seepage, excess humus.	Severe: flooding, ponding, excess humus.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
AG------------------ Andry	Severe: flooding, ponding, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: flooding, ponding.	Severe: flooding, ponding.	Poor: ponding.
Ah------------------ Andry	Severe: wetness, percs slowly.	Severe: excess humus, wetness.	Severe: wetness, excess humus.	Severe: wetness.	Poor: wetness, hard to pack.
AN*. Aquents					
BA------------------ Bancker	Severe: flooding, wetness, percs slowly.	Severe: flooding, excess humus.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
BB------------------ Barbary	Severe: flooding, ponding, percs slowly.	Severe: flooding, excess humus, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
BE------------------ Basile	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Bh*. Beach, coastal					
Ch------------------ Cheniere	Severe: poor filter.	Severe: seepage.	Severe: seepage, too sandy.	Severe: seepage.	Poor: seepage, too sandy.
CL------------------ Clovelly	Severe: flooding, ponding, percs slowly.	Severe: flooding, seepage, excess humus.	Severe: ponding, flooding, excess humus.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
Cm, Cn-------------- Coteau	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.

See footnote at end of table.

TABLE 13.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Co*:					
Coteau	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Moderate: wetness.	Fair: too clayey, wetness.
Patoutville	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Frost	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
CR: Creole	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Cw: Crowley	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Cx: Crowley	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Cy*:					
Crowley	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Patoutville	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
DE: Delcomb	Severe: flooding, ponding, percs slowly.	Severe: seepage, ponding, flooding.	Severe: flooding, ponding.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.
Du: Dundee	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
FA: Fausse	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
Fo: Frost	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Poor: wetness.
Fr: Frost	Severe: flooding, wetness, percs slowly.	Severe: flooding.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.

See footnote at end of table.

TABLE 13.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
Fz: Frozard	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
GE: Ged	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: ponding, too clayey, hard to pack.
Gy: Gueydan	Severe: wetness, percs slowly.	Severe: excess humus.	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Hb: Hackberry	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness, seepage.
Hm*:					
Hackberry	Severe: wetness, poor filter.	Severe: seepage, wetness.	Severe: seepage, wetness, too sandy.	Severe: seepage, wetness.	Poor: too sandy, wetness, seepage.
Mermentau	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Ja: Jeanerette	Severe: wetness, percs slowly.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Poor: wetness.
Jd: Judice	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Jk*:					
Judice	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Kaplan	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
Ka: Kaplan	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack.
LF: Lafitte	Severe: flooding, ponding, subsides.	Severe: seepage, flooding, excess humus.	Severe: flooding, ponding, excess humus.	Severe: flooding, seepage, ponding.	Poor: ponding, excess humus.

See footnote at end of table.

TABLE 13.--SANITARY FACILITIES--Continued

Soil name and map symbol	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
LR: Larose	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, ponding, hard to pack.
Me: Memphis	Slight	Moderate: seepage, slope.	Slight	Slight	Good.
MM: Mermentau	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: flooding, wetness.	Poor: wetness.
Mn: Midland	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Mr: Morey	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Mt: Mowata	Severe: wetness, percs slowly.	Slight	Severe: wetness, too clayey.	Severe: wetness.	Poor: too clayey, hard to pack, wetness.
Pa: Patoutville	Severe: wetness, percs slowly.	Slight	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
Pb: Patoutville	Severe: wetness, percs slowly.	Moderate: slope.	Severe: wetness.	Severe: wetness.	Fair: too clayey, wetness.
SC: Scatlake	Severe: flooding, ponding, percs slowly.	Severe: flooding, ponding.	Severe: flooding, ponding, too clayey.	Severe: flooding, ponding.	Poor: too clayey, hard to pack, ponding.
UD. Udifluvents					

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 14.--CONSTRUCTION MATERIALS

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Aa: Acadia	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
AE: Allemands	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
AG: Andry	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
Ah: Andry	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
AN*. Aquents				
BA: Bancker	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
BB: Barbary	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
BE: Basile	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Bh*. Beach, coastal				
Ch: Cheniere	Good	Probable	Improbable: too sandy.	Poor: too sandy.
CL: Clovelly	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
Cm, Cn: Coteau	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Co*:				
Coteau	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Patoutville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnote at end of table.

TABLE 14.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Co*:				
Frost	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
CR: Creole	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, excess salt, wetness.
Cw, Cx: Crowley	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
Cy*:				
Crowley	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, wetness.
Patoutville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
DE: Delcomb	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess humus, excess salt, wetness.
Du: Dundee	Fair: wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
FA: Fausse	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Fo, Fr: Frost	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
Fz: Frozard	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, thin layer.
GE: Ged	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Gy: Gueydan	Poor: shrink-swell, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Hb: Hackberry	Fair: wetness.	Probable	Improbable: too sandy.	Poor: too sandy.
Hm*:				
Hackberry	Fair: wetness.	Probable	Improbable: too sandy.	Poor: small stones, too sandy.

See footnote at end of table.

TABLE 14.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
Hm*:				
Mermentau	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
Ja Jeanerette	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Jd Judice	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Jk*:				
Judice	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Kaplan	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
Ka Kaplan	Poor: low strength, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey.
LF Lafitte	Poor: wetness.	Improbable: excess humus.	Improbable: excess humus.	Poor: excess humus, wetness.
LR Larose	Poor: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Me Memphis	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Good.
MM Mermentau	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: excess salt, wetness.
Mn Midland	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Mr Morey	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.
Mt Mowata	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, wetness.
Pa, Pb Patoutville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey.

See footnote at end of table.

TABLE 14.--CONSTRUCTION MATERIALS--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
SC------------------- Scatlake	Poor: low strength, wetness, shrink-swell.	Improbable: excess fines.	Improbable: excess fines.	Poor: too clayey, excess salt, wetness.
UD. Udifluvents				

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 15.--WATER MANAGEMENT

(Some terms that describe restrictive soil features are defined in the "Glossary." See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Aa------ Acadia	Slight	Severe: hard to pack, wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly.	Wetness, erodes easily, percs slowly.
AE------ Allemands	Severe: seepage.	Severe: excess humus, ponding.	Slight	Flooding, percs slowly, ponding.	Flooding, ponding, percs slowly.	Wetness, percs slowly.
AG------ Andry	Moderate: seepage.	Severe: ponding.	Severe: slow refill.	Ponding, flooding, excess salt.	Ponding, flooding, excess salt.	Wetness, excess salt.
Ah------ Andry	Moderate: seepage.	Severe: piping, wetness, excess humus.	Severe: slow refill.	Subsides	Wetness	Wetness.
AN*. Aquents						
BA------ Bancker	Slight	Severe: excess humus, hard to pack, wetness.	Severe: slow refill.	Percs slowly, flooding, subsides.	Percs slowly, wetness, flooding.	Wetness, percs slowly, excess salt.
BB------ Barbary	Slight	Severe: excess humus, hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly.	Wetness, percs slowly.
BE------ Basile	Moderate: seepage.	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Bh*. Beach, coastal						
Ch------ Cheniere	Severe: seepage.	Severe: seepage.	Severe: no water.	Deep to water	Droughty	Droughty.
CL------ Clovelly	Severe: seepage.	Severe: ponding, excess humus.	Severe: slow refill.	Flooding, percs slowly, ponding.	Flooding, ponding, percs slowly.	Wetness, percs slowly, excess salt.
Cm, Cn------ Coteau	Slight	Moderate: thin layer, piping, wetness.	Severe: no water.	Favorable	Wetness, erodes easily.	Erodes easily.
Co*: Coteau------	Slight	Moderate: thin layer, piping, wetness.	Severe: no water.	Favorable	Wetness, erodes easily.	Erodes easily.

See footnote at end of table.

TABLE 15.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Co*:						
Patoutville	Slight	Moderate: piping, wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.
Frost	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
CR: Creole	Moderate: seepage.	Severe: hard to pack, ponding.	Severe: slow refill, cutbanks cave.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Wetness, excess salt, percs slowly.
Cw, Cx: Crowley	Slight	Severe: wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Cy*:						
Crowley	Slight	Severe: wetness.	Severe: no water.	Percs slowly	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Patoutville	Slight	Moderate: piping, wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.
DE: Delcomb	Severe: seepage.	Severe: excess humus, ponding.	Severe: slow refill.	Ponding, flooding, subsides.	Ponding, flooding, excess salt.	Wetness, excess salt.
Du: Dundee	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Favorable	Wetness	Erodes easily.
FA: Fausse	Slight	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Wetness, percs slowly.
Fo: Frost	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Fr: Frost	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly, flooding.	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Fz: Frozard	Slight	Severe: wetness.	Severe: slow refill.	Percs slowly	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
GE: Ged	Slight	Severe: ponding, hard to pack.	Severe: slow refill.	Percs slowly, flooding, ponding.	Ponding, slow intake, percs slowly.	Wetness, percs slowly.
Gy: Gueydan	Slight	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly, subsides.	Wetness, percs slowly.	Wetness, erodes easily, percs slowly.

See footnote at end of table.

TABLE 15.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Hb----------------- Hackberry	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Percs slowly, cutbanks cave.	Wetness, droughty.	Wetness, droughty, rooting depth.
Hm*:						
Hackberry---------	Severe: seepage.	Severe: seepage, piping, wetness.	Severe: cutbanks cave.	Cutbanks cave	Wetness, droughty.	Wetness, droughty, rooting depth.
Mermentau---------	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, flooding, excess salt.	Wetness, droughty, slow intake.	Wetness, excess salt, erodes easily.
Ja----------------- Jeanerette	Slight---------	Severe: wetness.	Severe: slow refill.	Favorable------	Wetness, erodes easily.	Wetness, erodes easily.
Jd----------------- Judice	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.
Jk*:						
Judice------------	Slight---------	Severe: hard to pack, wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly.	Wetness, percs slowly.
Kaplan------------	Slight---------	Severe: wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.
Ka----------------- Kaplan	Slight---------	Severe: wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.
LF----------------- Lafitte	Severe: seepage.	Severe: excess humus, ponding.	Severe: slow refill.	Ponding, flooding, subsides.	Ponding, flooding, excess salt.	Wetness, excess salt.
LR----------------- Larose	Slight---------	Severe: hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, slow intake, percs slowly.	Wetness, percs slowly.
Me----------------- Memphis	Moderate: seepage, slope.	Severe: piping.	Severe: no water.	Deep to water	Slope, erodes easily.	Erodes easily.
MM----------------- Mermentau	Moderate: seepage.	Severe: piping, wetness.	Severe: slow refill.	Percs slowly, flooding, excess salt.	Wetness, droughty, slow intake.	Wetness, excess salt, erodes easily.
Mn----------------- Midland	Slight---------	Severe: wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Mr----------------- Morey	Slight---------	Severe: wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.

See footnote at end of table.

TABLE 15.--WATER MANAGEMENT--Continued

Soil name and map symbol	Limitations for-- Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Features affecting-- Drainage	Irrigation	Grassed waterways
Mt----------------- Mowata	Slight---------	Severe: wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Wetness, erodes easily, percs slowly.
Pa, Pb------------ Patoutville	Slight---------	Moderate: piping, wetness.	Severe: slow refill.	Percs slowly---	Wetness, percs slowly, erodes easily.	Erodes easily, percs slowly.
SC----------------- Scatlake	Slight---------	Severe: excess humus, hard to pack, ponding.	Severe: slow refill.	Ponding, percs slowly, flooding.	Ponding, percs slowly, slow intake.	Wetness, excess salt.
UD. Udifluvents						

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 16.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
Aa: Acadia	0-8	Silt loam	ML, CL-ML	A-4	0	100	100	95-100	85-100	15-30	NP-7
	8-11	Silt loam, silty clay loam.	CL	A-6	0	100	100	95-100	85-100	30-40	11-18
	11-47	Clay, silty clay	CH, CL	A-7-6	0	100	100	95-100	90-100	42-70	20-43
	47-60	Silty clay, silty clay loam.	CH, CL	A-7-6, A-6	0	100	100	95-100	85-100	35-65	15-38
AE: Allemands	0-12	Mucky peat	PT	A-8	0	---	---	---	---	---	---
	12-48	Muck	PT	A-8	0	---	---	---	---	---	---
	48-60	Clay, mucky clay	MH, OH	A-7-5	0	100	100	95-100	80-100	65-90	30-50
	60-80	Clay, mucky clay	MH, OH	A-7-5	0	100	100	95-100	80-100	65-90	30-50
AG: Andry	0-8	Muck	PT	A-8	0	---	---	---	---	---	NP
	8-20	Mucky silt loam, mucky silty clay loam, silt loam.	OL, ML, CL-ML	A-4, A-6	0	100	100	100	95-100	25-40	4-13
	20-68	Silt loam, silty clay loam, loam.	CL, ML	A-6, A-7-6	0	100	100	100	75-100	30-45	11-18
Ah: Andry	0-10	Muck	PT	A-8	0	---	---	---	---	---	---
	10-38	Mucky silt loam, mucky silty clay loam, silt loam.	CL-ML, CL	A-4, A-6	0	100	100	100	95-100	25-40	5-18
	38-60	Silt loam, silty clay loam.	CL, ML	A-6, A-4	0	100	100	100	95-100	30-40	7-18
AN*. Aquents											
BA: Bancker	0-10	Muck	PT	A-8	0	---	---	---	---	---	---
	10-72	Clay, silty clay, mucky clay.	OH, MH	A-7-5	0	100	100	100	90-100	55-90	15-45
BB: Barbary	0-4	Muck	PT	A-8	0	---	---	---	---	---	---
	4-60	Mucky clay, clay	OH, MH	A-7-5, A-8	0	100	100	100	95-100	70-90	35-45
BE: Basile	0-24	Silt loam	ML, CL, CL-ML	A-4	0	100	100	90-100	75-95	<30	NP-10
	24-56	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	95-100	80-95	30-42	12-20
	56-60	Silt loam, silty clay loam.	CL	A-6, A-4, A-7-6	0	100	100	95-100	80-95	28-42	8-20
Bh*. Beach, coastal											
Ch: Cheniere	0-5	Sandy clay loam	SC, CL-ML	A-4	0-5	90-100	85-100	80-90	45-75	20-30	4-10
	5-63	Sand, loamy fine sand, fine sand.	GM-GC, SP-SM, SP	A-1-b, A-2	0-5	50-100	65-100	40-90	2-15	---	NP
CL: Clovelly	0-40	Muck	PT	A-8	0	---	---	---	---	---	---
	40-80	Clay, silty clay, mucky clay.	CH, CL, MH, ML	A-7-6, A-7-5	0	100	100	95-100	85-95	47-87	25-45

See footnote at end of table.

TABLE 16.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification Unified	Classification AASHTO	Frag- ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct					Pct	
Cm, Cn-----------	0-6	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<27	NP-7
Coteau	6-42	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	33-45	12-22
	42-60	Silt loam--------	CL-ML, CL	A-4, A-6, A-7-6	0	100	100	100	95-100	25-42	5-18
Co*:											
Coteau----------	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<27	NP-7
	5-36	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	33-45	12-22
	36-60	Silt loam--------	CL-ML, CL	A-4, A-6, A-7-6	0	100	100	100	95-100	25-42	5-18
Patoutville-----	0-5	Silt loam--------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	5-42	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	95-100	30-50	10-25
	42-60	Silty clay loam, silt loam.	CL	A-6, A-7-6, A-4	0	100	100	100	95-100	25-50	8-23
Frost-----------	0-14	Silt loam--------	CL-ML, CL	A-4, A-6	0	100	100	100	80-100	15-30	5-15
	14-60	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	90-100	35-50	15-25
CR---------------	0-7	Muck-------------	PT	A-8	0	---	---	---	---	---	---
Creole	7-38	Clay, silty clay, mucky clay.	CH	A-7-6	0	100	100	90-100	75-95	50-81	27-55
	38-64	Clay, silty clay, clay loam.	CH, CL	AAA-7	0	100	100	90-100	70-95	42-74	20-52
Cw---------------	0-16	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
Crowley	16-26	Silty clay, silty clay loam, clay loam.	CH, CL	A-7-6	0	100	100	95-100	85-100	41-60	20-35
	26-60	Silty clay loam, silty clay, clay loam.	CL, CH	A-7-6, A-6	0	100	100	95-100	85-100	38-60	18-35
Cx---------------	0-12	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
Crowley	12-32	Silty clay, silty clay loam, clay loam.	CH, CL	A-7-6	0	100	100	95-100	85-100	41-60	20-35
	32-60	Silty clay loam, silty clay, clay loam.	CL, CH	A-7-6, A-6	0	100	100	95-100	85-100	38-60	18-35
Cy*:											
Crowley---------	0-15	Silt loam--------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
	15-42	Silty clay, silty clay loam, clay loam.	CH, CL	A-7-6	0	100	100	95-100	85-100	41-60	20-35
	42-60	Silty clay loam, silty clay, clay loam.	CL, CH	A-7-6, A-6	0	100	100	95-100	85-100	38-60	18-35

See footnote at end of table.

TABLE 16.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
Cy*:											
Patoutville	0-12	Silt loam	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	12-42	Silty clay loam	CL	A-6, A-7-6	0	100	100	100	95-100	30-50	10-25
	42-60	Silty clay loam, silt loam.	CL	A-6, A-7-6, A-4	0	100	100	100	95-100	25-50	8-23
DE Delcomb	0-26	Muck	PT	A-8	0	---	---	---	---	---	NP
	26-50	Mucky silt loam, mucky silty clay loam, silty clay loam.	OL, ML	A-4, A-6	0	100	100	100	80-100	28-40	3-13
	50-60	Silty clay loam, silt loam.	CL, ML	A-6, A-7-6	0	100	100	100	80-100	30-45	11-18
Du Dundee	0-7	Very fine sandy loam.	ML, CL-ML	A-4	0	100	100	75-95	51-75	<30	NP-7
	7-38	Silty clay loam, clay loam, sandy clay loam.	CL	A-6, A-7	0	100	100	90-100	70-95	28-44	12-22
	38-60	Loam, very fine sandy loam, silt loam.	CL, CL-ML, ML	A-4	0	100	100	85-100	60-90	<30	NP-8
FA Fausse	0-4	Clay	CH, OH, MH	A-7-6	0	100	100	100	95-100	60-100	31-71
	4-60	Clay, silty clay, silty clay loam, mucky clay.	CH, MH, CL, ML	A-7-6	0	100	100	100	95-100	45-100	16-71
Fo Frost	0-15	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	100	80-100	15-30	5-15
	15-60	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	90-100	35-50	15-25
Fr Frost	0-28	Silt loam	CL-ML, CL	A-4, A-6	0	100	100	100	80-100	15-30	5-15
	28-60	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	90-100	35-50	15-25
Fz Frozard	0-7	Silt loam	ML, CL-ML	A-4	0	100	100	100	95-100	<32	NP-7
	7-36	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	95-100	95-100	90-100	85-100	32-50	15-27
	36-80	Silt loam, silty clay loam.	CL	A-6, A-7-6	0	95-100	95-100	90-100	85-100	30-45	12-23
GE Ged	0-8	Clay	CH	A-7-5, A-7-6	0	100	100	100	80-95	50-75	23-43
	8-14	Clay, mucky clay, silty clay.	CH	A-7-5, A-7-6	0	100	100	98-100	80-95	53-85	30-52
	14-60	Clay, silty clay	CH	A-7-5, A-7-6	0	100	100	98-100	85-95	55-85	30-52
Gy Gueydan	0-6	Muck	PT	A-8	---	---	---	---	---	---	---
	6-46	Clay, silty clay	CH, MH	A-7-6, A-7-5	0	100	100	100	95-100	60-90	35-50
	46-80	Clay, silty clay, silty clay loam.	CH, MH	A-7-6, A-7-5	0	100	100	100	95-100	52-90	30-50

See footnote at end of table.

TABLE 16.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Frag-ments > 3 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct					Pct	
Hb---------------- Hackberry	0-7	Sandy clay loam	SC, CL, CH	A-6, A-7	0-2	98-100	95-100	80-100	40-80	35-60	15-40
	7-22	Loamy fine sand, fine sandy loam, fine sand.	SM, SC, SP-SM, SM-SC	A-2, A-4	0-2	85-98	75-98	65-98	10-40	<24	NP-8
	22-60	Fine sand, loamy fine sand, sandy loam, sand.	SM, SC, SP-SM, SM-SC	A-2	0-2	85-98	75-98	65-98	10-35	<24	NP-8
Hm*:											
Hackberry--------	0-8	Fine sandy loam	SM, SP-SM	A-2, A-4	0-2	85-98	75-98	65-98	10-40	<24	NP
	8-31	Loamy fine sand, fine sandy loam, fine sand.	SM, SC, SP-SM, SM-SC	A-2, A-4	0-2	85-98	75-98	65-98	10-40	<24	NP-8
	31-60	Fine sand, loamy fine sand, sandy loam, sand.	SM, SC, SP-SM, SM-SC	A-2	0-2	85-98	75-98	65-98	10-35	<24	NP-8
Mermentau--------	0-21	Clay--------------	CH	A-7-6	0	100	100	90-100	75-95	50-80	27-54
	21-42	Very fine sandy loam, loam, fine sandy loam.	ML, CL-ML, CL	A-4	0	100	100	75-95	51-90	15-40	NP-20
	42-60	Sandy clay, silty clay, clay, clay loam.	CH, CL	A-7-6	0	100	100	85-100	51-95	45-70	24-46
Ja---------------- Jeanerette	0-6	Silt loam---------	CL-ML, CL	A-4	0	100	100	95-100	90-100	23-31	4-10
	6-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	85-100	85-100	80-95	80-95	32-48	11-24
	40-60	Silt loam, very fine sandy loam, silty clay loam.	CL, CL-ML	A-6, A-4	0	90-100	90-100	85-100	85-100	23-40	4-17
Jd---------------- Judice	0-15	Silty clay loam	CL, CH	A-7-6	0	100	100	100	95-100	47-58	22-30
	15-60	Silty clay, silty clay loam.	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	47-80	32-48
Jk*:											
Judice-----------	0-6	Silty clay loam	CL, CH	A-7-6	0	100	100	100	95-100	47-58	22-30
	6-60	Silty clay, silty clay loam.	CH, CL	A-7-6, A-7-5	0	100	100	100	95-100	47-80	32-48
Kaplan-----------	0-8	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
	8-15	Silty clay loam	CL	A-6, A-7-6	0	90-100	90-100	85-100	85-100	30-49	13-33
	15-67	Silty clay loam, silty clay.	CL, CH	A-6, A-7-6	0	85-100	85-100	80-95	80-95	38-55	20-35
Ka---------------- Kaplan	0-8	Silt loam---------	ML, CL-ML, CL	A-4	0	100	100	95-100	80-100	<30	NP-10
	8-18	Silty clay loam	CL	A-6, A-7-6	0	90-100	90-100	85-100	85-100	30-49	13-33
	18-60	Silty clay loam, silty clay.	CL, CH	A-6, A-7-6	0	85-100	85-100	80-95	80-95	38-55	20-35

See footnote at end of table.

TABLE 16.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct					Pct	
LF---------------- Lafitte	0-55	Muck----------------	PT	A-8	0	---	---	---	---	---	---
	55-70	Clay, silty clay, silty clay loam, silt loam.	CH, CL	A-7-6, A-6	0	100	100	90-100	80-100	38-95	18-60
LR---------------- Larose	0-6	Mucky clay----------	CH	A-7-5	0	100	100	100	90-100	60-87	30-52
	6-30	Clay, silty clay, mucky clay.	CH, OH	A-7-5	0	100	100	100	90-100	60-98	30-52
	30-60	Clay, silty clay, mucky clay.	CH	A-7-5	0	100	100	100	90-100	60-87	30-52
Me---------------- Memphis	0-8	Silt loam----------	ML, CL-ML, CL	A-4	0	100	100	100	90-100	<30	NP-10
	8-41	Silt loam, silty clay loam.	CL	A-6, A-7	0	100	100	100	90-100	35-48	15-25
	41-60	Silt loam, silty clay loam.	ML, CL	A-4, A-6	0	100	100	100	90-100	30-40	6-15
MM---------------- Mermentau	0-21	Clay----------------	CH	A-7-6	0	100	100	90-100	75-95	50-80	27-54
	21-56	Very fine sandy loam, loam, fine sandy loam.	ML, CL-ML, CL	A-4	0	100	100	75-95	51-90	15-40	NP-20
	56-60	Sandy clay, silty clay, clay, clay loam.	CH, CL	A-7-6	0	100	100	85-100	51-95	45-70	24-46
Mn---------------- Midland	0-8	Silty clay loam	CL	A-6, A-7-6	0	100	100	90-100	75-100	30-42	12-22
	8-60	Silty clay, clay, silty clay loam.	CH, CL	A-7-6	0	100	100	100	95-100	41-65	20-40
Mr---------------- Morey	0-6	Silt loam----------	CL, CL-ML	A-4, A-6	0	100	95-100	90-100	75-95	23-40	5-18
	6-54	Silty clay loam, clay loam, silt loam.	CL	A-6, A-7	0	100	95-100	90-100	85-95	34-50	14-30
	54-60	Silty clay loam, silty clay, clay.	CL, CH	A-6, A-7	0	98-100	95-100	90-100	85-95	35-60	15-36
Mt---------------- Mowata	0-14	Silt loam----------	CL-ML, CL	A-4	0	100	100	95-100	90-100	22-30	5-10
	14-58	Silty clay loam, silty clay, clay loam.	CL, CH	A-7-6	0	100	100	95-100	75-95	41-60	22-37
	58-60	Silty clay loam, silty clay, clay loam.	CL	A-7-6, A-6	0	100	100	95-100	75-95	37-49	18-29
Pa---------------- Patoutville	0-11	Silt loam----------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	11-42	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	30-50	10-25
	42-70	Silty clay loam, silt loam.	CL	A-6, A-7-6, A-4	0	100	100	100	95-100	25-50	8-23
Pb---------------- Patoutville	0-9	Silt loam----------	ML, CL-ML	A-4	0	100	100	100	95-100	<28	NP-7
	9-40	Silty clay loam, silt loam.	CL	A-6, A-7-6	0	100	100	100	95-100	30-50	10-25
	40-60	Silty clay loam, silt loam.	CL	A-6, A-7-6, A-4	0	100	100	100	95-100	25-50	8-23

See footnote at end of table.

TABLE 16.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
SC---------------- Scatlake	0-8	Mucky clay--------	OH, MH	A-7-5	0	100	100	100	95-100	55-90	15-45
	8-20	Mucky clay, clay	OH, MH	A-7-5	0	100	100	100	95-100	55-90	15-45
	20-80	Clay-------------	MH, OH	A-7-5	0	100	100	100	95-100	70-90	35-45
UD. Udifluvents											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm				Pct
Aa: Acadia	0-8	14-27	1.35-1.70	0.6-2.0	0.16-0.23	4.5-6.0	<2	Low	0.49	5	.5-4
	8-11	20-39	1.35-1.70	0.6-2.0	0.16-0.22	4.5-5.5	<2	Moderate	0.32		
	11-47	40-55	1.20-1.60	<0.06	0.15-0.18	4.5-6.0	<2	High	0.32		
	47-60	30-55	1.20-1.70	<0.2	0.15-0.20	6.1-7.8	<2	High	0.32		
AE: Allemands	0-12	---	0.05-0.25	>2.0	0.20-0.50	5.1-6.5	<4	Low	-----	---	---
	12-48	---	0.05-0.25	>2.0	0.20-0.50	6.1-7.3	<4	Low	-----		
	48-60	60-95	0.15-1.00	<0.06	0.14-0.18	6.1-8.4	<4	Low	0.32		
	60-95	60-95	0.25-1.00	<0.6	0.12-0.18	6.1-8.4	<4	Low	0.37		
AG: Andry	0-8	---	0.15-0.50	2.0-6.0	0.20-0.50	4.5-7.8	4-16	Low	-----	---	30-85
	8-20	14-35	1.10-1.60	0.6-2.0	0.08-0.11	5.1-7.8	4-16	Low	0.32		
	20-68	14-35	1.35-1.70	0.2-0.6	0.08-0.10	6.6-9.0	4-16	Moderate	0.32		
Ah: Andry	0-10	---	0.25-1.00	2.0-6.0	0.20-0.25	3.6-6.5	2-4	Low	-----	---	30-85
	10-38	14-35	1.20-1.60	0.6-2.0	0.08-0.11	3.6-7.3	2-4	Low	0.32		
	38-60	14-35	1.35-1.70	0.2-0.6	0.08-0.10	6.6-8.4	2-4	Moderate	0.32		
AN*. Aquents											
BA: Bancker	0-10	---	0.10-0.40	>2.0	0.20-0.50	4.5-7.8	4-8	Low	-----	---	22-70
	10-72	50-85	0.20-1.00	<0.06	0.14-0.18	5.6-8.4	4-8	Low	0.28		
BB: Barbary	0-4	---	0.15-0.50	2.0-6.0	0.20-0.50	5.1-7.8	<2	Low	-----	---	30-70
	4-60	60-95	0.25-1.00	<0.06	0.18-0.20	6.6-8.4	<2	Low	0.32		
BE: Basile	0-24	10-27	1.35-1.65	0.6-2.0	0.18-0.20	4.5-7.3	<2	Low	0.43	5	.5-3
	24-56	18-35	1.35-1.65	0.06-0.2	0.20-0.22	4.5-8.4	<2	Moderate	0.37		
	56-60	14-35	1.35-1.70	0.06-0.2	0.18-0.20	6.1-8.4	<2	Low	0.43		
Bh*. Beach, coastal											
Ch: Cheniere	0-5	15-30	1.50-1.70	0.6-2.0	0.15-0.17	7.4-9.0	<2	Low	0.24	5	.5-2
	5-63	0-7	1.50-1.70	6.0-20.0	0.02-0.06	7.4-9.0	<2	Low	0.15		
CL: Clovelly	0-40	---	0.05-0.25	>2.0	0.10-0.45	6.1-8.4	4-8	Low	-----	---	30-60
	40-80	50-90	0.15-1.00	<0.06	0.11-0.18	4.5-8.4	4-8	Low	0.28		
Cm, Cn: Coteau	0-6	5-18	1.35-1.65	0.2-0.6	0.21-0.23	4.5-6.5	<2	Low	0.49	5	.5-4
	6-42	18-32	1.35-1.65	0.2-0.6	0.20-0.23	4.5-6.5	<2	Moderate	0.32		
	42-60	8-27	1.35-1.65	0.2-0.6	0.20-0.23	5.1-7.3	<2	Low	0.37		
Co*:											
Coteau	0-5	5-18	1.35-1.65	0.2-0.6	0.21-0.23	4.5-6.5	<2	Low	0.49	5	.5-4
	5-36	18-32	1.35-1.65	0.2-0.6	0.20-0.23	4.5-6.5	<2	Moderate	0.32		
	36-60	8-27	1.35-1.65	0.2-0.6	0.20-0.23	5.1-7.3	<2	Low	0.37		
Patoutville	0-5	8-15	1.35-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low	0.49	5	.5-4
	5-42	18-35	1.35-1.65	0.06-0.2	0.20-0.22	5.1-7.3	<2	Moderate	0.37		
	42-60	18-35	1.35-1.65	0.06-0.6	0.20-0.22	6.1-8.4	<2	Moderate	0.37		

See footnote at end of table.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm				Pct
Co*:											
Frost-----------	0-14	8-22	1.35-1.65	0.2-0.6	0.21-0.23	3.6-6.5	<2	Low---------	0.49	5	.5-4
	14-60	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-7.3	<2	Moderate----	0.37		
CR---------------	0-7	---	0.05-0.25	>2.0	0.12-0.45	4.5-7.8	4-16	Low---------	-----	---	30-60
Creole	7-38	40-78	1.00-1.50	0.06	0.10-0.15	4.5-8.4	4-16	Low---------	0.32		
	38-64	30-74	1.00-1.50	0.06	0.10-0.15	6.6-8.4	4-16	Low---------	0.32		
Cw---------------	0-16	10-27	1.30-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low---------	0.49	5	.5-4
Crowley	16-26	35-50	1.20-1.55	<0.06	0.19-0.21	4.5-7.3	<2	High--------	0.32		
	26-60	27-55	1.30-1.65	0.06-0.2	0.20-0.22	4.5-8.4	<2	Moderate----	0.32		
Cx---------------	0-12	10-27	1.30-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low---------	0.49	5	.5-4
Crowley	12-32	35-50	1.20-1.55	<0.06	0.19-0.21	4.5-7.3	<2	High--------	0.32		
	32-60	27-55	1.30-1.65	0.06-0.2	0.20-0.22	4.5-8.4	<2	Moderate----	0.32		
Cy*:											
Crowley---------	0-15	10-27	1.30-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low---------	0.49	5	.5-4
	15-42	35-50	1.20-1.55	<0.06	0.19-0.21	4.5-7.3	<2	High--------	0.32		
	42-60	27-55	1.30-1.65	0.06-0.2	0.20-0.22	4.5-8.4	<2	Moderate----	0.32		
Patoutville-----	0-12	8-15	1.35-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low---------	0.49	5	.5-4
	12-42	18-35	1.35-1.65	0.06-0.2	0.20-0.22	5.1-7.3	<2	Moderate----	0.37		
	42-60	18-35	1.35-1.65	0.06-0.6	0.20-0.22	6.1-8.4	<2	Moderate----	0.37		
DE---------------	0-26	---	0.15-0.50	>2.0	0.20-0.50	5.6-7.8	4-16	Low---------	-----	---	30-60
Delcomb	26-50	10-35	0.25-1.00	0.6-2.0	0.10-0.13	6.1-8.4	4-16	Low---------	0.32		
	50-60	14-35	1.30-1.70	0.2-0.6	0.10-0.12	6.6-8.4	4-16	Moderate----	0.32		
Du---------------	0-7	5-18	1.30-1.70	0.6-2.0	0.15-0.20	4.5-6.0	<2	Low---------	0.43	5	.5-1
Dundee	7-38	18-34	1.30-1.80	0.2-0.6	0.15-0.20	4.5-6.0	<2	Moderate----	0.32		
	38-60	18-25	1.30-1.80	0.6-2.0	0.15-0.20	4.5-7.3	<2	Low---------	0.32		
FA---------------	0-4	40-95	0.80-1.45	<0.06	0.18-0.20	5.6-7.3	<2	Very high	0.20	5	2-15
Fausse	4-60	35-95	1.10-1.45	<0.2	0.18-0.22	6.1-8.4	<2	Very high	0.24		
Fo---------------	0-15	8-22	1.35-1.65	0.2-0.6	0.21-0.23	4.5-6.5	<2	Low---------	0.49	5	.5-4
Frost	15-60	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-7.3	<2	Moderate----	0.37		
Fr---------------	0-28	8-22	1.35-1.65	0.2-0.6	0.21-0.23	4.5-6.5	<2	Low---------	0.49	5	.5-4
Frost	28-60	18-35	1.35-1.70	0.06-0.2	0.20-0.22	4.5-7.3	<2	Moderate----	0.37		
Fz---------------	0-7	15-27	1.35-1.65	0.6-2.0	0.15-0.21	5.1-7.3	<2	Low---------	0.49	3	.5-4
Frozard	7-36	18-35	1.40-1.85	0.06-0.2	0.10-0.15	6.6-9.0	<2	Moderate----	0.49		
	36-80	18-35	1.40-1.75	0.2-0.6	0.15-0.21	6.6-9.0	<2	Moderate----	0.49		
GE---------------	0-8	35-55	0.60-1.35	<0.06	0.14-0.18	4.5-7.8	<2	Low---------	0.28	5	5-20
Ged	8-14	45-75	1.15-1.35	<0.06	0.14-0.18	4.5-7.8	<2	High--------	0.24		
	14-60	60-80	1.20-1.40	<0.06	0.14-0.18	6.1-8.4	<2	High--------	0.24		
Gy---------------	0-6	---	0.15-0.25	2.0-6.0	0.20-0.50	3.6-6.0	<4	High--------	-----	---	30-70
Gueydan	6-46	35-60	1.20-1.55	<0.06	0.07-0.19	3.6-7.8	<4	Very high	0.37		
	46-80	37-70	1.20-1.60	<0.06	0.07-0.19	7.4-8.4	<4	Very high	0.37		
Hb---------------	0-7	20-35	1.35-1.75	0.06-0.2	0.12-0.22	5.6-7.8	2-4	High--------	0.28	5	.2-10
Hackberry	7-22	0-18	1.40-1.70	6.0-20.0	0.08-0.13	5.6-9.0	2-4	Low---------	0.15		
	22-60	0-18	1.40-1.70	6.0-20.0	0.08-0.11	6.6-9.4	2.4	Low---------	0.15		

See footnote at end of table.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permea- bility	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm				Pct
Hm*:											
Hackberry-------	0-8	5-20	1.40-1.65	6.0-20.0	0.10-0.15	5.6-7.8	2-4	Low---------	0.15	5	.2-10
	8-31	0-18	1.40-1.70	6.0-20.0	0.08-0.13	5.6-9.0	2-4	Low---------	0.15		
	31-60	0-18	1.40-1.70	6.0-20.0	0.08-0.11	6.6-9.4	2.4	Low---------	0.15		
Mermentau-------	0-21	40-76	1.25-1.70	<0.06	0.12-0.17	6.6-8.4	4-16	High--------	0.28	5	4-14
	21-42	10-27	1.25-1.70	0.6-2.0	0.03-0.15	6.6-8.4	4-16	Low---------	0.37		
	42-60	35-65	1.00-1.50	<0.06	0.10-0.15	6.6-8.4	4-16	High--------	0.32		
Ja--------------- Jeanerette	0-6	10-26	1.35-1.65	0.6-2.0	0.21-0.23	5.6-7.8	<2	Low---------	0.49	5	.5-4
	6-40	18-35	1.35-1.70	0.2-0.6	0.20-0.22	6.6-8.4	<2	Moderate----	0.37		
	40-60	14-35	1.35-1.70	0.2-0.6	0.20-0.23	6.6-8.4	<2	Moderate----	0.37		
Jd--------------- Judice	0-15	27-50	1.20-1.70	0.06-0.2	0.17-0.22	5.1-7.3	<2	High--------	0.32	5	1-4
	15-60	27-50	1.20-1.70	<0.06	0.15-0.19	5.6-8.4	<2	High--------	0.32		
Jk*:											
Judice----------	0-6	27-50	1.20-1.70	0.06-0.2	0.17-0.22	5.1-7.3	<2	High--------	0.32	5	1-4
	6-60	27-50	1.20-1.70	<0.06	0.15-0.19	5.6-8.4	<2	High--------	0.32		
Kaplan----------	0-8	14-26	1.30-1.65	0.2-0.6	0.20-0.23	6.1-8.4	<2	Low---------	0.43	5	1-4
	8-15	27-39	1.30-1.60	0.06-0.2	0.20-0.22	6.6-8.4	<2	Moderate----	0.37		
	15-67	33-50	1.20-1.70	0.06-0.2	0.19-0.21	7.4-8.4	<2	High--------	0.37		
Ka--------------- Kaplan	0-8	14-26	1.30-1.65	0.2-0.6	0.20-0.23	6.1-8.4	<2	Low---------	0.43	5	1-4
	8-18	27-39	1.30-1.60	0.06-0.2	0.20-0.22	6.6-8.4	<2	Moderate----	0.37		
	18-60	33-50	1.20-1.70	0.06-0.2	0.19-0.21	7.4-8.4	<2	High--------	0.37		
LF--------------- Lafitte	0-55	---	0.05-0.25	2.0-6.0	0.18-0.45	6.1-8.4	4-8	Low---------	-----	---	30-70
	55-70	18-85	0.25-1.00	<0.06	0.11-0.18	6.6-8.4	4-8	Low---------	0.32		
LR--------------- Larose	0-6	50-80	0.15-1.00	<0.06	0.14-0.18	5.6-7.8	<4	Low---------	0.32	5	4-14
	6-30	50-80	0.15-1.00	<0.06	0.14-0.18	5.6-7.8	<4	Low---------	0.28		
	30-60	50-80	0.15-1.00	<0.06	0.14-0.18	6.1-8.4	<4	Low---------	0.28		
Me--------------- Memphis	0-8	8-22	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	<2	Low---------	0.49	5	.5-2
	8-41	20-35	1.30-1.50	0.6-2.0	0.20-0.22	4.5-6.0	<2	Low---------	0.49		
	41-60	12-30	1.30-1.50	0.6-2.0	0.20-0.23	4.5-6.0	<2	Low---------	0.49		
MM--------------- Mermentau	0-21	40-76	1.25-1.70	<0.06	0.12-0.17	6.6-8.4	4-16	High--------	0.28	5	4-14
	21-56	10-27	1.25-1.70	0.6-2.0	0.03-0.15	6.6-8.4	4-16	Low---------	0.37		
	56-60	35-65	1.00-1.50	<0.06	0.10-0.15	6.6-8.4	4-16	High--------	0.32		
Mn--------------- Midland	0-8	27-39	1.30-1.65	0.06-0.2	0.20-0.22	5.1-7.3	<2	Moderate----	0.37	5	.5-4
	8-60	35-55	1.19-1.60	<0.06	0.14-0.20	5.1-8.4	<2	High--------	0.32		
Mr--------------- Morey	0-6	10-30	1.25-1.50	0.6-2.0	0.16-0.24	4.5-7.3	<2	Low---------	0.37	5	1-4
	6-54	20-35	1.25-1.50	0.06-0.2	0.18-0.22	5.1-7.8	<2	Moderate----	0.37		
	54-60	30-45	1.40-1.65	0.06-0.2	0.18-0.22	5.6-8.4	<2	High--------	0.37		
Mt--------------- Mowata	0-14	8-24	1.35-1.65	0.2-0.6	0.21-0.23	5.1-7.3	<2	Low---------	0.49	5	.5-4
	14-58	35-50	1.20-1.60	<0.06	0.18-0.20	5.1-8.4	<2	High--------	0.37		
	58-60	30-50	1.20-1.65	<0.06	0.18-0.20	6.6-8.4	<2	High--------	0.43		
Pa--------------- Patoutville	0-11	8-15	1.35-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low---------	0.49	5	.5-4
	11-42	18-35	1.35-1.65	0.06-0.2	0.20-0.22	5.1-7.3	<2	Moderate----	0.37		
	42-70	18-35	1.35-1.65	0.06-0.6	0.20-0.22	6.1-8.4	<2	Moderate----	0.37		

See footnote at end of table.

TABLE 17.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Salinity	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	g/cc	In/hr	In/in	pH	mmhos/cm				Pct
Pb--------------- Patoutville	0-9	8-15	1.35-1.65	0.2-0.6	0.20-0.23	4.5-8.4	<2	Low----------	0.49	5	.5-4
	9-40	18-35	1.35-1.65	0.06-0.2	0.20-0.22	5.1-7.3	<2	Moderate----	0.37		
	40-60	18-35	1.35-1.65	0.06-0.6	0.20-0.22	6.1-8.4	<2	Moderate----	0.37		
SC--------------- Scatlake	0-8	40-60	0.25-1.00	<0.2	0.05-0.15	6.6-8.4	8-16	Low----------	0.24	5	2-25
	8-20	40-60	0.25-1.00	<0.2	0.05-0.15	6.6-8.4	8-16	Low----------	0.24		
	20-80	60-85	0.25-1.00	<0.06	0.05-0.15	6.6-8.4	8-16	Low----------	0.28		
UD. Udifluvents											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 18.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
Aa------------- Acadia	D	None--------	---	---	0.5-1.5	Perched	Dec-Apr	---	---	High------	High.
AE------------- Allemands	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	8-25	16-51	High------	Moderate.
AG------------- Andry	D	Frequent---	Brief to very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	4-8	8-12	High------	Moderate.
Ah------------- Andry	D	Rare--------	---	---	1.0-3.0	Apparent	Jan-Dec	4-8	8-16	High------	High.
AN*. Aquents											
BA------------- Bancker	D	Frequent---	Very long.	Jan-Dec	+1.-0.5	Apparent	Jan-Dec	2-4	5-15	High------	Moderate.
BB------------- Barbary	D	Frequent---	Brief to very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	3-12	6-15	High------	Moderate.
BE------------- Basile	D	Frequent---	Brief to long.	Jan-Dec	0-1.5	Apparent	Dec-May	---	---	High------	Moderate.
Bh*. Beach, coastal											
Ch------------- Cheniere	A	Rare--------	---	---	>6.0	---	---	---	---	Moderate	Low.
CL------------- Clovelly	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	8-20	16-51	High------	Low.
Cm, Cn--------- Coteau	C	None--------	---	---	1.5-3.0	Perched	Dec-Apr	---	---	High------	Moderate.
Co*: Coteau---------	C	None--------	---	---	1.5-3.0	Perched	Dec-Apr	---	---	High------	Moderate.
Patoutville---	C	None--------	---	---	2.0-5.0	Apparent	Dec-May	---	---	High------	Moderate.
Frost----------	D	None--------	---	---	0-1.5	Apparent	Dec-Apr	---	---	High------	Moderate.
CR------------- Creole	D	Frequent---	Long---	Jan-Dec	+1-1.0	Apparent	Jan-Dec	1-3	3-7	High------	Moderate.
Cw, Cx--------- Crowley	D	None--------	---	---	0.5-1.5	Perched	Dec-Apr	---	---	High------	Moderate.
Cy*: Crowley--------	D	None--------	---	---	0.5-1.5	Perched	Dec-Apr	---	---	High------	Moderate.

See footnote at end of table.

TABLE 18.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
Cy*:											
Patoutville	C	None	---	---	2.0-5.0	Apparent	Dec-May	---	---	High	Moderate.
DE: Delcomb	D	Frequent	Brief to long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	10-25	18-50	High	Moderate.
Du: Dundee	C	None	---	---	1.5-3.5	Apparent	Jan-Apr	---	---	High	Moderate.
FA: Fausse	D	Frequent	Brief to very long.	Jan-Dec	+1.-1.5	Apparent	Jan-Dec	---	---	High	Low.
Fo: Frost	D	Rare	---	---	0-1.5	Apparent	Dec-Apr	---	---	High	Moderate.
Fr: Frost	D	Occasional	Brief to long.	Dec-Jun	0-1.5	Apparent	Dec-Apr	---	---	High	Moderate.
Fz: Frozard	C	None	---	---	1.0-3.0	Perched	Dec-Apr	---	---	High	Low.
GE: Ged	D	Frequent	Long	Jan-Dec	+1-0	Apparent	Jan-Dec	---	---	High	Moderate.
Gy: Gueydan	D	Rare	---	---	1.0-3.0	Apparent	Jan-Dec	1-5	4-10	High	Moderate.
Hb: Hackberry	B	Rare	---	---	1.0-4.0	Apparent	Jan-Dec	---	---	Moderate	Low.
Hm*:											
Hackberry	B	Rare	---	---	1.0-4.0	Apparent	Jan-Dec	---	---	Moderate	Low.
Mermentau	D	Frequent	Brief	Jan-Dec	0-3.5	Apparent	Jan-Dec	---	---	High	Moderate.
Ja: Jeanerette	D	Rare	---	---	1.0-2.5	Apparent	Dec-Apr	---	---	High	Low.
Jd: Judice	D	Rare	---	---	0-1.5	Apparent	Dec-Apr	---	---	High	Low.
Jk*:											
Judice	D	Rare	---	---	0-1.5	Apparent	Dec-Apr	---	---	High	Low.
Kaplan	D	None	---	---	1.5-2.5	Apparent	Dec-Apr	---	---	High	Low.
Ka: Kaplan	D	None	---	---	1.5-2.5	Apparent	Dec-Apr	---	---	High	Low.
LF: Lafitte	D	Frequent	Brief to very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	15-30	>51	High	Moderate.
LR: Larose	D	Frequent	Very long.	Jan-Dec	+2-0.5	Apparent	Jan-Dec	2-8	5-15	High	Moderate.

See footnote at end of table.

TABLE 18.--SOIL AND WATER FEATURES--Continued

Soil name and map symbol	Hydro-logic group	Flooding			High water table			Subsidence		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Initial	Total	Uncoated steel	Concrete
					Ft			In	In		
Me------------- Memphis	B	None-------	---	---	>6.0	---	---	---	---	Moderate	Moderate.
MM------------- Mermentau	D	Frequent---	Brief	Jan-Dec	0-3.5	Apparent	Jan-Dec	---	---	High-----	Moderate.
Mn------------- Midland	D	Rare-------	---	---	0.5-3.0	Apparent	Dec-Apr	---	---	High-----	Moderate.
Mr------------- Morey	D	Rare-------	---	---	0.5-2.5	Apparent	Dec-Apr	---	---	High-----	Low.
Mt------------- Mowata	D	Rare-------	---	---	0-2.0	Apparent	Dec-Apr	---	---	High-----	Low.
Pa, Pb--------- Patoutville	C	None-------	---	---	2.0-5.0	Apparent	Dec-May	---	---	High-----	Moderate.
SC------------- Scatlake	D	Frequent---	Very long.	Jan-Dec	+1-0.5	Apparent	Jan-Dec	---	6-12	High-----	Moderate.
UD. Udifluvents											

* See description of the map unit for composition and behavior characteristics of the map unit.

TABLE 19.--FERTILITY TEST DATA FOR SELECTED SOILS

(Analyses by the Soil Fertility Laboratory, Louisiana Agricultural Experiment Station)

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Exchangeable cations: Mg	Exchangeable cations: K	Exchangeable cations: Na	Exchangeable cations: Al	Exchangeable cations: H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Acadia silt loam:[1] (S84LA113-010)	A	0-4	3.11	4.3	5	0.7	0.4	0.1	0.0	1.5	1.3	8.9	10.1	4.0	11.9	0.0	37.5	1.8
	E	4-9	0.90	4.2	5	0.1	0.1	0.0	0.0	2.2	0.2	4.0	4.2	2.6	4.8	0.0	84.6	1.0
	BE	9-12	0.32	4.7	5	0.1	1.0	0.0	0.4	7.9	0.9	12.2	13.7	10.3	10.9	2.9	76.7	0.1
	Btg1	12-20	0.24	4.7	5	1.4	3.8	0.2	2.8	15.2	0.4	22.1	30.3	23.8	27.1	9.2	63.9	0.4
	Btg2	20-38	0.19	4.9	5	4.6	8.7	0.3	6.6	6.3	0.7	12.2	32.4	27.2	62.3	20.4	23.2	0.5
	Btg3	38-48	0.10	6.0	5	7.4	10.0	0.3	11.3	0.0	0.2	3.0	32.0	29.2	90.6	35.3	0.0	0.7
	Cg	48-60	0.01	7.7	8	7.0	9.4	0.3	10.2	0.0	0.2	1.0	27.9	27.1	96.4	36.6	0.0	0.7
Basile silt loam: (S84LA113-015)	A	0-6	2.48	4.5	41	12.5	6.0	0.3	0.4	1.0	0.2	15.9	35.1	20.4	54.7	1.1	4.9	2.08
	Eg1	6-14	0.94	4.6	27	11.5	7.2	0.2	0.7	1.2	0.4	12.4	32.0	21.2	61.2	2.2	5.7	1.60
	Eg2	14-29	0.77	4.7	37	10.9	8.1	0.2	1.1	1.0	0.4	12.4	32.7	21.7	62.1	3.4	4.6	1.35
	B/E	29-38	0.59	4.6	23	8.8	6.3	0.2	1.2	2.4	0.4	11.3	27.8	19.3	59.4	4.3	12.4	1.40
	Btg	38-60	0.37	4.5	9	12.4	7.8	0.4	1.4	2.2	0.4	11.9	24.6	36.5	64.9	4.1	8.9	1.59
Coteau silt loam:[2] (S83LA113-007)	Ap	0-6	0.80	4.7	26	6.3	2.5	0.4	0.1	0.5	0.4	10.5	19.8	10.2	47.0	0.5	4.9	2.52
	Bt	6-17	0.32	5.0	8	5.8	3.2	0.3	0.1	0.9	0.5	9.5	18.9	10.8	49.7	0.5	8.3	1.81
	B/E	17-32	0.12	5.1	5	5.7	3.9	0.2	0.2	0.2	0.3	7.8	17.8	10.5	56.2	1.1	1.9	1.46
	B't	32-42	0.05	5.5	44	7.1	4.3	0.2	0.2	0.0	0.0	6.7	18.5	11.8	63.8	1.1	0.0	1.65
	BC	42-60	0.01	5.5	59	8.1	4.4	0.2	0.3	0.2	0.2	5.1	18.1	13.4	71.8	1.7	1.5	1.84
Crowley silt loam:[2] (S84LA113-012)	Ap	0-9	0.99	5.8	20	6.5	1.7	0.1	0.1	0.0	0.0	6.8	15.2	8.4	55.3	0.7	0.0	3.82
	Eg	9-16	0.54	6.5	5	8.5	3.2	0.1	0.5	0.0	0.0	8.4	20.8	12.3	59.6	2.4	0.0	2.69
	Btg1	16-26	0.59	5.0	5	13.9	6.6	0.3	0.8	1.2	0.0	13.0	34.6	22.8	62.4	2.3	5.3	2.11
	Btg2	26-42	0.28	5.6	5	14.3	6.3	0.3	0.8	0.0	0.0	8.4	30.1	21.7	72.1	2.7	0.0	2.27
	BCg	42-60	0.01	6.1	5	15.4	6.6	0.2	0.9	0.0	0.0	7.1	30.2	23.1	76.5	3.0	0.0	2.33
Frost silt loam:[3] (S83LA113-008)	Ap	0-6	0.86	4.2	29	3.9	1.4	0.2	0.1	0.9	0.5	8.9	14.5	7.0	38.6	0.7	12.9	2.79
	E	6-15	0.30	4.9	5	6.0	2.0	0.1	0.2	0.9	0.9	8.6	16.9	10.1	49.1	1.2	8.9	3.00
	B/E	15-30	0.20	4.8	5	12.2	3.3	0.2	0.8	5.2	0.9	10.6	27.1	22.6	60.9	3.0	23.0	3.70
	Btg1	30-42	0.03	5.0	46	17.4	4.7	0.2	1.0	1.3	0.5	8.9	32.2	25.1	72.4	3.1	5.2	3.70
	Btg2	42-64	0.03	5.5	150	18.2	5.1	0.2	0.9	0.2	0.0	7.6	32.0	24.6	76.2	2.8	0.8	3.57
Frozard silt loam:[2] (S84LA113-014)	Ap	0-7	0.81	5.5	7	5.0	1.9	0.1	1.9	0.0	0.0	7.4	16.3	8.9	54.6	11.7	0.0	2.36
	Bt	7-12	0.81	7.1	5	13.3	6.9	0.2	2.5	0.0	0.0	7.8	30.7	22.9	74.6	8.1	0.0	1.93
	Btk	12-23	0.41	8.0	31	15.5	7.6	0.2	3.5	0.0	0.0	6.8	33.6	26.8	79.8	10.4	0.0	2.04
	Btg1	23-36	0.19	7.9	14	11.6	5.6	0.2	3.9	0.0	0.0	5.6	26.9	21.3	79.2	14.5	0.0	2.07
	Btg2	36-58	0.15	7.3	37	10.7	4.5	0.2	3.6	0.0	0.0	5.9	24.9	19.0	76.3	14.4	0.0	2.38
	BC	58-80	0.04	7.1	34	12.2	4.5	0.1	3.0	0.0	0.0	6.5	26.3	19.8	75.3	11.4	0.0	2.71

See footnotes at end of table.

TABLE 19.--FERTILITY TEST DATA FOR SELECTED SOILS--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	--------Milliequivalents/100 grams of soil--------									Pct	Pct	Pct	
Ged clay:[2]	A	0-8	5.28	5.6	122	11.3	6.5	0.3	1.1	0.0	0.2	6.0	25.2	19.4	76.2	4.4	0.0	1.7
(S84LA113-004)	2A	8-14	2.42	5.9	21	11.1	7.2	0.2	0.9	0.0	0.0	6.6	26.0	19.4	74.6	3.5	0.0	1.5
	2Btg1	14-26	0.65	6.5	10	11.8	8.1	0.2	0.8	0.0	0.0	4.2	25.1	19.4	83.3	3.2	0.0	1.5
	2Btg2	26-34	0.29	7.0	8	10.1	6.9	0.2	0.7	0.0	0.0	3.0	20.9	17.9	85.6	3.3	0.0	1.5
	2Btkg	34-48	0.15	7.9	7	17.7	8.1	0.3	0.7	0.0	0.0	1.8	28.6	26.8	93.7	2.4	0.0	2.2
	2Ckg	48-60	0.11	7.9	12	16.0	12.1	0.4	0.9	0.0	0.0	3.6	33.0	29.4	89.1	2.7	0.0	1.3
Jeanerette silt loam:[2]	Ap	0-6	3.51	6.8	76	28.3	5.7	0.3	0.3	0.0	0.0	4.2	38.8	34.6	89.2	0.8	0.0	4.96
(S83LA113-004)	Bt	6-18	1.30	8.0	12	31.5	5.9	0.1	0.5	0.0	0.0	2.2	40.2	38.0	94.5	1.2	0.0	5.34
	Btk	18-30	0.54	8.3	5	37.4	5.3	0.1	0.3	0.0	0.0	1.1	44.2	43.1	97.5	0.7	0.0	7.06
	Btkg	30-40	0.24	8.2	7	39.1	5.4	0.1	0.4	0.0	0.0	0.1	45.1	45.0	99.8	0.9	0.0	7.24
	B'tg	40-56	0.10	7.7	190	18.7	5.7	0.2	0.5	0.0	0.0	0.1	25.2	25.1	99.6	2.0	0.0	3.28
	Cg	56-60	0.06	7.5	203	20.0	5.8	0.2	0.5	0.0	0.0	0.8	27.3	26.5	97.1	1.8	0.0	3.45
Judice silty clay loam:[2]	Ap1, Ap2	0-9	1.61	4.7	30	12.0	5.9	0.3	0.5	0.2	0.2	8.6	27.3	19.1	68.5	1.8	1.0	2.03
(S88LA113-016)	A	9-15	0.72	6.4	10	18.6	7.7	0.3	0.9	0.0	0.2	4.3	31.8	27.7	86.5	2.8	0.0	2.42
	Bg1	15-33	0.28	7.2	5	25.5	8.6	0.4	1.3	0.0	0.0	5.1	40.9	35.8	87.5	3.2	0.0	2.97
	Bg2	33-50	0.28	7.2	6	29.0	10.9	0.4	1.4	0.0	0.0	5.9	47.6	41.7	87.6	2.9	0.0	2.66
	BCg	50-60	0.01	7.3	88	30.5	11.0	0.5	1.1	0.0	0.0	5.4	48.5	43.1	88.9	2.3	0.0	2.77
Memphis silt loam:[4]	Ap	0-5	0.96	4.0	47	1.3	0.4	0.7	0.1	2.0	0.7	11.0	13.5	5.2	18.5	0.7	38.5	3.25
(S83LA113-005)	A	5-8	0.86	4.1	5	1.4	0.4	0.3	0.1	2.5	0.7	12.2	14.4	5.4	15.3	0.7	46.3	3.50
	Bt1	8-25	0.44	4.5	5	3.2	1.5	0.2	0.1	4.1	0.8	13.7	18.7	9.9	26.7	0.5	41.4	2.13
	Bt2	25-42	0.20	4.7	5	4.4	3.0	0.2	0.1	2.5	0.6	10.6	18.3	10.8	42.1	0.5	23.1	1.47
	BC	42-60	0.08	5.2	5	7.3	4.0	0.2	0.2	0.4	0.3	7.6	19.3	12.4	60.6	1.0	3.2	1.82
Midland silty clay loam:[2]	Ap1	0-5	1.78	6.1	43	7.0	3.5	0.2	0.4	0.0	0.0	8.1	19.2	11.1	57.8	2.1	0.0	2.00
(S84LA113-011)	Ap2	5-8	1.25	6.5	5	10.1	5.4	0.1	1.0	0.0	0.0	7.8	24.4	16.6	68.0	4.1	0.0	1.87
	Btg1	8-14	1.12	6.8	5	9.8	6.7	0.1	1.5	0.0	0.0	6.2	24.3	18.1	74.5	6.2	0.0	1.46
	Btg2	14-22	0.54	7.2	5	11.5	9.2	0.2	2.5	0.0	0.0	5.6	29.0	23.4	80.7	8.6	0.0	1.25
	Btg3	22-31	0.28	7.4	5	16.2	11.5	0.2	4.5	0.0	0.0	8.1	40.5	32.4	80.0	11.1	0.0	1.41
	Btg4	31-45	0.10	7.8	5	16.0	10.9	0.2	4.4	0.0	0.0	6.2	37.7	31.5	83.6	11.7	0.0	1.47
	BCg	45-60	0.01	7.7	5	13.9	10.7	0.2	2.7	0.0	0.0	5.0	32.5	27.5	84.6	8.3	0.0	1.30
Morey silt loam:[2]	Ap	0-6	1.43	5.0	18	12.0	4.3	0.2	0.6	0.0	0.0	13.0	30.1	17.1	56.8	2.0	0.0	2.79
(S84LA113-013)	BA	6-10	0.97	5.8	5	14.8	5.5	0.1	1.1	0.0	0.0	10.2	31.7	21.5	67.8	3.5	0.0	2.69
	Btg1	10-23	0.41	5.8	5	14.4	7.4	0.2	1.3	0.0	0.0	10.5	33.8	23.3	68.9	3.8	0.0	1.95
	Btg2	23-37	0.10	6.2	5	14.4	8.1	0.2	1.7	0.0	0.0	10.5	34.9	24.4	69.9	4.9	0.0	1.78
	Btg3	37-54	0.10	6.9	5	15.2	8.2	0.2	1.4	0.0	0.0	8.9	33.9	25.0	73.7	4.1	0.0	1.85
	BCg	54-60	0.01	7.1	22	15.3	8.0	0.2	1.1	0.0	0.0	7.8	32.4	24.6	75.9	3.4	0.0	1.91

See footnotes at end of table.

TABLE 19.--FERTILITY TEST DATA FOR SELECTED SOILS--Continued

Soil name and sample number	Horizon	Depth	Organic matter content	pH 1:1 H_2O	Extractable phosphorus	Exchangeable cations: Ca	Mg	K	Na	Al	H	Total acidity	Cation-exchange capacity (sum)	Cation-exchange capacity (effective)	Base saturation (sum)	Saturation: Sum of cation-exchange capacity Na	Saturation: Effective cation-exchange capacity Al	Ca/Mg
		In	Pct		Ppm	Milliequivalents/100 grams of soil									Pct	Pct	Pct	
Mowata silt loam:[2] (S83LA113-009)	Ap	0-5	0.89	5.6	2	10.1	3.4	0.1	0.4	0.0	0.0	5.7	19.7	14.0	71.1	2.0	0.0	2.97
	Eg	5-14	0.50	6.7	5	10.6	3.7	0.1	0.7	0.0	0.0	4.6	19.7	15.1	76.6	3.6	0.0	2.86
	B/E	14-22	0.41	6.0	5	13.0	5.4	0.1	1.1	0.5	0.2	9.5	29.1	20.3	67.4	3.8	2.5	2.41
	Btg1	22-44	0.15	6.0	0	18.1	7.4	0.2	1.0	0.0	0.0	5.7	32.4	26.7	82.4	3.1	0.0	2.45
	Btg2	44-58	0.07	6.4	0	17.4	6.8	0.2	0.6	0.0	0.0	5.1	30.1	25.0	83.1	2.0	0.0	2.56
Patoutville silt loam:[2] (S84LA113-006)	Ap	0-6	0.68	4.8	5	4.0	1.0	0.4	0.1	0.0	0.4	6.3	11.8	5.9	46.6	0.8	0.0	4.00
	E	6-11	0.12	5.2	5	3.8	1.9	0.1	0.2	0.2	0.2	5.7	11.7	6.4	51.3	1.7	3.1	2.00
	Btg1	11-19	0.23	5.1	7	7.5	4.8	0.2	0.8	1.4	0.6	7.3	20.6	15.3	64.6	3.9	9.2	1.56
	Btg2	19-30	0.17	5.6	5	9.6	5.8	0.2	1.2	0.2	0.4	8.2	25.0	17.4	67.2	4.8	1.1	1.66
	Btg3	30-42	0.11	5.9	5	8.5	5.4	0.2	1.2	0.0	0.0	5.7	21.0	15.3	72.9	5.7	0.0	1.57
	BCg	42-70	0.03	6.2	33	8.9	5.6	0.2	1.2	0.0	0.0	6.5	22.4	15.9	71.0	5.4	0.0	1.59

[1] This Acadia pedon is outside the range of the Acadia series because the reaction of the A and E horizons is slightly lower than allowed in the series range. It is included as a similar soil in map unit Aa, Acadia silt loam, 1 to 3 percent slopes.

[2] Typical pedon for the survey area.

[3] This Frost pedon is outside the range of the Frost series because the reaction of the Ap horizon is slightly more acid than allowed in the series range. It is included as a similar soil in map unit Fo, Frost silt loam.

[4] This Memphis pedon is outside the range of the Memphis series because the reaction of the Ap1 and Ap2 horizons is slightly lower than allowed in the series range.

TABLE 20.--PHYSICAL TEST DATA FOR SELECTED SOILS

(Dashes indicate analyses not made)

Soil name and sample number	Horizon	Depth	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)	Total (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Water content: 1/3 bar	15 bar	Water retention difference	Bulk density: Air-dry	Oven-dry	Field moisture
		In	Pct								Pct (wt)			g/cm3	g/cm3	g/cm3
Andry muck:[1,2]	Oa	0-8	---	---	---	---	---	---	---	---	73.2	7.8	65.4	---	---	---
(S84LA113-001)	A1	8-12	0.0	2.2	2.6	3.3	3.5	11.6	64.4	24.0	59.5	30.4	29.1	1.53	1.55	1.39
	A2	12-20	0.0	0.1	0.1	0.3	0.9	1.4	74.4	24.2	40.5	17.8	22.7	1.69	1.72	1.66
	Btg	20-28	0.0	0.4	2.3	3.1	3.2	9.0	64.3	26.7	39.3	20.6	18.7	1.79	1.81	1.76
	Btgk1	28-34	0.0	1.3	0.6	0.5	0.9	3.3	70.5	26.2	40.5	21.6	18.9	1.99	2.02	1.89
	Btgk2	34-45	0.0	2.9	1.5	1.1	1.1	6.6	68.1	25.3	36.7	18.8	17.9	1.88	1.90	1.83
	BCg	45-68	0.0	0.4	0.3	0.2	1.0	1.9	70.7	27.4	37.4	21.1	16.3	1.89	1.91	1.84
Bancker muck:[1,3]	Oa1	0-4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	99.9	103.7	86.0	17.7	---	---	---
(S85LA113-002)	Oa2	4-10	0.0	0.2	0.4	0.5	0.8	1.9	43.3	54.8	71.8	51.3	20.5	---	---	---
	Cg1	10-22	0.0	0.0	0.1	0.1	0.9	1.1	37.8	61.1	56.7	34.9	21.8	---	---	---
	Cg2	22-38	0.0	0.0	0.2	0.9	2.3	3.4	37.9	58.7	54.5	32.3	22.2	---	---	---
	Cg3	38-50	0.0	0.0	0.1	0.3	1.7	2.1	16.1	81.8	61.5	35.3	26.2	---	---	---
	Cg4	50-72	0.0	0.0	0.1	0.2	0.3	0.6	15.5	83.9	63.0	37.1	25.9	---	---	---
Cheniere sandy clay loam:[1,3,4]	Ap	0-5	0.0	4.1	18.4	36.4	6.3	65.2	14.8	20.0	14.7	9.2	5.5	---	---	---
(S85LA113-005)	C1	5-10	---	---	---	---	---	---	---	---	8.7	5.2	3.5	---	---	---
		10-14	0.0	2.0	15.7	63.5	5.3	86.5	7.4	6.1	6.8	3.4	3.4	---	---	---
		14-20	---	---	---	---	---	---	---	---	3.5	2.2	1.3	---	---	---
		20-21	0.0	5.6	27.8	52.2	2.2	87.8	5.9	6.3	6.4	3.6	2.8	---	---	---
		21-26	---	---	---	---	---	---	---	---	4.3	3.3	1.0	---	---	---
	C2	26-28	---	---	---	---	---	---	---	---	6.1	4.5	1.6	---	---	---
		28-36	---	---	---	---	---	---	---	---	5.7	4.8	0.9	---	---	---
		36-39	0.0	0.8	3.9	57.0	16.5	78.2	16.7	5.1	14.1	5.9	8.2	---	---	---
		39-52	---	---	---	---	---	---	---	---	5.6	3.9	1.7	---	---	---
		52-53	0.0	0.8	4.1	78.4	2.7	86.0	13.4	0.6	2.5	1.6	0.9	---	---	---
		53-59	---	---	---	---	---	---	---	---	4.4	2.8	1.6	---	---	---
		59-63	0.0	1.2	3.9	58.0	32.8	95.9	2.9	1.2	3.9	2.0	1.9	---	---	---
Creole muck:[1]	Oa	0-7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	99.9	105.2	87.0	18.2	---	---	---
(S85LA113-003)	A	7-14	0.0	0.3	1.1	3.4	4.1	8.9	35.8	55.3	58.9	37.7	21.2	---	---	---
	Cg1	14-24	0.0	0.0	0.1	7.4	10.8	18.3	31.3	50.4	45.2	28.3	16.9	---	---	---
	Cg2	24-38	0.0	0.3	0.4	0.7	2.4	3.8	33.0	63.2	55.4	34.1	21.3	---	---	---
	Cg3	38-64	0.0	0.1	0.1	0.4	0.5	1.1	29.4	69.5	59.5	37.5	22.0	---	---	---

See footnotes at end of table.

TABLE 20.--PHYSICAL TEST DATA FOR SELECTED SOILS--Continued

Soil name and sample number	Horizon	Depth	Particle-size distribution: Sand: Very coarse (2.0-1.0 mm)	Coarse (1.0-0.5 mm)	Medium (0.5-0.25 mm)	Fine (0.25-0.10 mm)	Very fine (0.10-0.05 mm)	Total (2.0-0.05 mm)	Silt (0.05-0.002 mm)	Clay (<0.002 mm)	Water content: 1/3 bar	15 bar	Water retention difference	Bulk density: Air-dry	Oven-dry	Field moisture
		In	Pct								Pct (wt)			g/cm^3	g/cm^3	g/cm^3
Crowley silt loam:[1] (S83LA113-003)	Ap	0-4	0.0	2.4	1.7	2.3	5.0	11.4	73.9	14.7	37.8	10.6	27.2	1.30	1.32	1.29
		4-9	0.0	4.2	2.1	1.6	3.9	11.8	72.5	15.7	32.9	10.8	22.1	1.64	1.67	1.62
	Eg	9-16	0.0	3.5	1.6	1.1	2.5	8.7	71.5	19.8	31.8	12.2	19.6	1.66	1.70	1.65
	Btg1	16-20	0.0	0.5	0.5	0.7	1.8	3.5	53.2	43.3	41.6	22.5	19.1	1.77	1.86	1.51
		20-26	0.0	0.4	0.3	0.8	1.8	3.3	56.9	39.8	40.7	21.1	19.6	1.76	1.84	1.56
	Btg2	26-34	0.0	0.6	0.5	1.1	3.3	5.5	61.9	32.6	37.1	20.4	16.7	1.77	1.84	1.63
		34-42	0.0	0.6	0.3	2.2	10.6	13.7	55.2	31.1	31.4	17.8	13.6	1.91	1.99	1.79
	BCg	42-60	0.0	0.5	0.2	2.7	12.9	16.3	46.7	37.0	34.0	18.8	14.2	2.00	2.02	1.73
Hackberry fine sandy loam:[1] (S85LA113-001)	A1	0-3	0.1	0.8	15.0	32.9	8.4	57.2	24.9	17.9	28.8	16.2	8.6	1.59	1.65	1.47
	A2	3-8	0.0	0.8	15.9	34.1	6.8	57.6	22.6	19.8	18.4	9.7	8.7	1.77	1.83	1.69
	Bw	8-19	0.0	0.8	27.5	57.5	1.7	87.5	5.0	7.5	6.4	4.1	2.3	1.75	1.77	1.68
	Bg1	19-24	0.0	0.5	22.8	59.0	1.0	83.3	1.8	14.9	12.7	8.1	4.6	1.73	1.79	1.58
	Bg2	24-31	0.0	0.8	16.5	78.5	1.1	96.9	1.1	2.0	3.1	2.5	0.6	---	---	---
	C1	31-42	0.0	3.4	46.8	46.2	0.7	97.1	2.4	0.5	2.4	1.9	0.5	---	---	---
	C2	42-48	0.0	3.4	46.8	46.2	0.7	97.1	2.4	0.5	2.4	1.9	0.5	---	---	---
	C3	48-60	0.0	1.7	29.8	65.0	1.3	97.8	1.2	1.0	2.0	1.7	0.3	---	---	---
Kaplan silt loam:[1] (S84LA113-002)	Ap1	0-4	0.0	1.1	0.6	0.8	3.2	5.7	75.5	18.8	51.3	12.3	39.0	1.62	1.64	1.61
	Ap2	4-8	0.0	0.8	0.5	0.6	2.8	4.7	75.5	19.8	36.3	13.3	23.0	1.69	1.71	1.61
	Btg	8-18	0.0	2.0	0.6	0.6	2.4	5.6	65.5	28.9	33.3	18.2	15.1	1.89	1.92	1.69
	Btkg1	18-25	0.0	0.8	0.3	0.4	2.1	3.6	60.5	35.9	37.2	19.8	17.4	1.94	1.97	1.64
	Btkg2	25-40	0.0	0.4	0.3	0.4	1.5	2.6	59.4	38.0	38.6	18.9	19.7	1.86	1.98	1.62
	Btkg3	40-51	0.0	1.1	0.8	1.2	1.5	4.6	58.7	36.7	39.2	18.1	21.1	1.97	1.99	1.78
	Btkg4	51-60	0.0	0.2	0.2	0.5	1.9	2.8	60.2	37.0	38.4	18.1	20.3	1.94	1.97	1.73

[1] Typical pedon for the survey area.

[2] This pedon has an n value that is slightly higher than allowed in the series range. Field estimates and performance observations indicate that this soil has an n value of slightly more than 0.7.

[3] Typical pedon for the series.

[4] The C horizons indicated by dashes are layers of broken shells. The shell fragments are sand-sized. The particle-size values represent the particle-sizes after the carbonates were removed. The average calcium carbonate equivalent in the particle-size control section is 49.13 percent.

TABLE 21, PART I.--CHEMICAL TEST DATA FOR SELECTED SOILS

(The symbol < means less than. Dashes indicate that analyses were not made)

Soil name and sample number	Horizon	Depth	Extractable bases: Ca	Mg	K	Na	Extractable acidity	Cation-exchange capacity NH4OAc	Base saturation NH4OAc	Organic carbon	Nitrogen	Carbon/ nitrogen
		In	Meq/100g				Pct	Pct		Pct	Pct	
Andry muck:[1]	Oa	0-8	10.3	19.1	1.6	17.4	23.6	64.7	74.8	38.79	1.005	38.6
(S84LA113-001)	A1	8-12	8.6	12.7	0.7	10.0	10.4	22.7	84.9	4.08	0.356	3.7
	A2	12-20	8.0	9.2	0.3	7.4	5.1	34.2	72.8	1.42	0.102	13.9
	Btg	20-28	7.6	8.8	0.4	7.4	3.1	34.2	70.8	0.44	0.039	11.3
	Btgk1	28-34	24.0	10.0	0.4	8.3	1.6	32.0	133.4	0.34	0.037	9.2
	Btgk2	34-45	14.4	10.4	0.3	7.6	1.3	25.2	129.8	0.25	0.029	8.6
	BCg	45-68	9.2	9.2	0.3	7.2	2.5	28.0	92.4	0.17	0.019	9.0
Bancker muck:[1,2]	Oa1	0-4	9.8	35.7	1.3	27.6	30.4	101.2	73.5	37.50	1.525	24.6
(S85LA113-002)	Oa2	4-10	12.0	36.8	1.5	19.8	28.0	94.6	74.1	22.56	1.050	21.5
	Cg1	10-22	7.4	29.1	1.6	27.3	16.6	67.3	97.2	2.10	0.305	6.9
	Cg2	22-38	6.6	29.4	2.5	24.6	9.4	54.1	116.6	1.28	0.149	8.6
	Cg3	38-50	7.0	26.4	3.3	23.6	6.4	58.7	102.7	0.87	0.099	8.8
	Cg4	50-72	9.0	27.4	3.2	28.2	7.0	53.2	127.4	1.22	0.096	12.7
Cheniere sandy clay loam:[1,2]	Ap	0-5	31.0	0.7	0.3	0.6	1.8	15.9	205.0	0.95	0.157	6.1
(S85LA113-005)	C1	5-10	28.5	0.3	0.1	0.6	0.4	6.4	460.9	0.95	0.032	29.7
		10-14	22.5	0.3	0.1	0.6	0.0	5.7	412.3	0.26	0.055	4.7
		14-20	23.0	0.3	0.1	0.6	0.0	0.4	1000.0	0.05	0.015	3.3
		20-21	22.0	0.4	0.1	0.6	0.0	6.3	366.7	0.22	0.034	6.5
		21-26	24.0	0.4	0.1	0.6	0.0	0.4	1000.0	0.02	0.010	2.0
	C2	26-28	23.5	0.3	0.1	0.6	0.0	0.4	1000.0	0.08	0.021	3.8
		28-36	22.5	0.8	0.1	0.6	0.0	0.4	1000.0	0.23	0.016	14.4
		36-39	25.0	0.5	0.1	0.6	0.0	1.8	1000.0	0.23	0.016	14.4
		39-52	26.0	0.3	0.1	0.5	0.0	3.1	867.7	0.06	0.015	4.0
		52-53	23.0	0.3	0.1	0.5	0.0	0.4	1000.0	0.06	0.005	12.0
		53-59	23.5	0.3	0.1	0.6	0.0	1.2	1000.0	0.08	0.002	40.0
		59-63	26.0	0.4	0.1	0.7	0.0	2.6	1000.0	0.08	0.002	40.0
Creole muck:[1]	Oa	0-7	8.6	28.0	1.7	37.8	24.0	84.0	90.6	34.40	1.1555	29.8
(S85LA113-003)	A	7-14	7.6	24.5	1.7	15.9	15.2	57.9	85.8	2.04	0.308	6.6
	Cg1	14-24	4.8	22.4	1.4	19.2	7.8	37.4	127.8	0.38	0.062	6.1
	Cg2	24-38	6.0	25.2	1.7	28.8	5.6	46.2	133.5	0.30	0.052	5.8
	Cg3	38-64	7.0	28.4	2.6	29.4	5.0	61.2	110.1	0.94	0.092	10.2
Crowley silt loam:[1]	Ap	0-4	3.4	1.5	0.5	0.1	9.5	10.6	51.9	0.85	0.090	9.4
(S83LA113-003)		4-9	4.2	1.9	0.3	0.1	7.4	10.1	63.4	0.36	0.060	6.0
	Eg	9-16	5.1	2.9	0.3	0.3	6.0	10.3	83.5	0.26	0.050	5.2
	Btg1	16-20	9.3	5.5	0.2	1.3	12.0	23.9	68.2	0.43	0.070	6.1
		20-26	10.2	5.7	0.3	1.6	9.9	22.3	79.8	0.30	0.050	6.0
	Btg2	26-34	9.0	4.9	0.3	1.4	7.4	18.0	86.7	0.15	0.030	5.0
		34-42	9.2	4.8	0.2	1.3	5.1	16.6	93.4	0.07	0.020	3.5
	BCg	42-60	11.5	5.8	0.2	1.5	5.4	19.1	99.5	0.01	0.020	0.5

See footnotes at end of table.

TABLE 21, PART I.--CHEMICAL TEST DATA FOR SELECTED SOILS--Continued

Soil name and sample number	Horizon	Depth	Extractable bases Ca	Mg	K	Na	Ex-tract-able acid-ity	Cation-exchange capacity NH$_4$OAc	Base satura-tion NH$_4$OAc	Organic carbon	Nitro-gen	Carbon/ nitrogen
		In	Meq/100g				Pct	Pct		Pct	Pct	
Hackberry fine sandy loam:[1] (S83LA113-003)	A1	0-3	18.5	5.3	0.9	0.7	10.4	33.9	74.9	9.04	0.397	22.8
	A2	3-8	18.0	3.4	0.5	0.5	6.8	17.2	130.2	0.62	0.097	6.6
	Bw	8-19	6.0	1.5	0.2	0.5	3.6	5.7	143.9	0.20	0.026	7.7
	Bg1	19-24	9.8	1.3	0.3	0.5	4.6	13.6	87.5	0.24	0.032	7.5
	Bg2	24-31	22.5	0.3	0.1	0.6	0.8	4.0	587.5	0.06	0.004	15.0
	C1	31-42	26.0	0.3	0.1	0.6	0.4	3.1	871.0	0.04	0.002	20.0
	C2	42-48	26.0	0.3	0.1	0.6	0.4	3.1	871.0	0.04	0.002	20.0
	C3	48-60	19.0	0.4	0.1	0.6	0.2	3.1	648.4	0.02	0.007	2.9
Kaplan silt loam:[1] (S84LA113-002)	Ap1	0-4	8.3	3.4	0.2	0.6	4.0	16.3	76.7	0.89	0.097	9.2
	Ap2	4-8	8.3	3.9	0.2	0.6	2.3	17.2	74.4	0.62	0.075	8.3
	Btg	8-18	8.1	8.0	0.2	0.9	2.2	21.6	70.4	0.27	0.053	5.1
	Btkg1	18-25	16.5	12.0	0.2	0.8	1.4	24.7	119.4	0.17	0.043	13.1
	Btgk2	25-40	9.9	8.0	0.2	0.4	1.4	16.7	110.8	0.10	0.025	4.0
	Btgk3	40-51	24.0	9.2	0.2	0.4	0.7	15.3	220.9	0.07	0.015	4.7
	Btkg4	51-60	7.4	7.0	0.2	0.4	0.7	15.6	95.5	0.06	0.013	4.6

1 Typical pedon for the survey area.
2 Typical pedon for the series.

TABLE 21, PART II.--CHEMICAL TEST DATA FOR SELECTED SOILS

(The symbol < means less than. Dashes indicate that analyses were not made)

Soil name and sample number	Horizon	Depth	pH 1:1 H_2O	pH 1:1 KCl	pH 1:2 $CaCl_2$	Extractable iron	Extractable aluminum	Extractable hydrogen	Extractable phosphorus Bray 1	Extractable phosphorus Bray 2
		In				Pct	Meq/100g	Meq/100g	Ppm	Ppm
Andry muck:[1]	Oa	0-8	4.8	4.5	4.7	0.27	1.2	0.2	49	74
(S84LA113-001)	A1	8-12	5.5	5.0	5.4	0.28	1.6	0.6	5	32
	A2	12-20	6.2	5.4	5.9	0.27	1.6	0.6	2	28
	Btg	20-28	7.6	6.6	7.2	0.37	0.0	0.0	0	23
	Btgk1	28-34	8.3	7.1	7.7	0.30	0.0	0.0	0	12
	Btgk2	34-45	8.5	7.3	8.0	0.30	0.0	0.0	0	12
	BCg	45-68	8.3	7.2	8.0	0.37	0.0	0.0	86	174
Bancker muck:[1,2]	Oa1	0-4	5.0	4.6	5.0	0.9	0.2	0.2	16	31
(S85LA113-002)	Oa2	4-10	5.3	4.9	5.3	0.8	0.0	0.2	4	27
	Cg1	10-22	5.6	5.0	5.6	0.5	0.0	0.2	4	23
	Cg2	22-38	6.8	6.0	6.8	0.4	0.0	0.0	46	49
	Cg3	38-50	8.0	7.2	8.1	0.5	0.0	0.0	94	98
	Cg4	50-72	7.9	7.1	7.9	0.6	0.0	0.0	62	82
Cheniere sandy clay loam:[1,2]	Ap	0-5	7.9	7.0	7.9	0.7	0.0	0.0	24	35
(S85LA113-005)	C1	5-10	8.1	7.8	8.1	0.4	0.0	0.0	<1	4
		10-14	8.2	7.8	8.2	0.5	0.0	0.0	<1	4
		14-20	8.4	7.1	7.8	0.4	0.0	0.0	<1	8
		20-21	8.2	7.1	7.9	0.4	0.0	0.0	<1	4
		21-26	8.5	7.5	7.9	0.3	0.0	0.0	<1	8
	C2	26-28	8.4	7.4	7.9	0.4	0.0	0.0	<1	8
		28-36	8.5	7.6	7.9	0.3	0.0	0.0	<1	8
		36-39	8.4	7.4	7.6	0.6	0.0	0.0	<1	4
		39-52	8.4	7.9	7.6	0.2	0.0	0.0	<1	8
		52-53	8.6	7.6	7.5	0.3	0.0	0.0	<1	6
		53-59	8.4	7.7	7.4	0.3	0.0	0.0	<1	4
		59-63	8.6	7.6	7.4	0.3	0.0	0.0	<1	8
Creole muck:[1]	Oa	0-7	4.7	4.3	4.6	0.7	0.0	0.4	30	35
(S85LA113-003)	A	7-14	5.6	5.0	5.6	0.6	0.0	0.2	14	16
	Cg1	14-24	7.1	6.1	7.1	2.4	0.0	0.0	12	16
	Cg2	24-38	7.8	7.1	7.8	2.2	0.0	0.0	16	58
	Cg3	38-64	7.9	7.0	7.9	0.6	0.0	0.0	48	62
Crowley silt loam:[1]	Ap	0-4	4.6	4.0	4.6	0.7	0.0	0.0	4	28
(S83LA113-003)		4-9	5.3	4.4	5.0	0.7	0.0	0.0	2	8
	Eg	9-16	6.0	5.0	5.7	0.5	0.0	0.0	2	4
	Btg1	16-20	5.4	4.1	5.0	1.0	0.6	0.3	2	6
		20-26	5.5	4.2	5.1	1.1	0.2	0.2	2	4
	Btg2	26-34	5.8	4.7	5.5	1.2	0.0	0.0	2	8
		34-42	6.4	5.2	6.0	0.9	0.0	0.0	2	4
	BCg	42-60	6.8	5.7	6.8	0.9	0.0	0.0	2	4

See footnotes at end of table.

TABLE 21, PART II.--CHEMICAL TEST DATA FOR SELECTED SOILS--Continued

Soil name and sample number	Horizon	Depth	pH 1:1 H_2O	pH 1:1 KCl	pH 1:2 $CaCl_2$	Extractable iron	Extractable aluminum	Extractable hydrogen	Extractable phosphorus Bray 1	Extractable phosphorus Bray 2
		In				Pct	Meq/100g	Meq/100g	Ppm	Ppm
Hackberry fine sandy loam:[1] (S85LA113-001)	A1	0-3	5.9	5.4	5.8	1.0	0.0	0.2	65	74
	A2	3-8	5.7	4.8	5.4	1.0	0.0	0.2	46	48
	Bw	8-19	5.8	4.7	5.4	0.5	0.0	0.2	50	58
	Bg1	19-24	6.0	4.9	5.7	0.7	0.0	0.2	38	60
	Bg2	24-31	7.8	6.9	7.1	0.3	0.0	0.0	12	16
	C1	31-42	8.4	7.4	7.4	0.2	0.0	0.0	10	14
	C2	42-48	8.4	7.4	7.4	0.2	0.0	0.0	10	14
	C3	48-60	8.4	7.1	7.3	0.4	0.0	0.0	21	26
Kaplan silt loam:[1] (S84LA113-002)	Ap1	0-4	6.5	5.3	6.1	0.49	0.0	0.0	14	36
	Ap2	4-8	7.2	5.9	6.6	0.46	0.0	0.0	1	19
	Btg	8-18	7.7	6.5	7.2	0.53	0.0	0.0	<1	1
	Btkg1	18-25	7.9	6.9	7.7	0.55	0.0	0.0	<1	1
	Btkg2	25-40	8.1	7.0	7.8	0.45	0.0	0.0	1	5
	Btkg3	40-51	8.3	7.1	7.9	0.58	0.0	0.0	1	31
	Btkg4	51-60	8.1	6.7	7.7	0.63	0.0	0.0	<1	48

1 Typical pedon for the survey area.
2 Typical pedon for the series.

TABLE 22.--CLASSIFICATION OF THE SOILS

Soil name	Family or higher taxonomic class
Acadia	Fine, montmorillonitic, thermic Aeric Ochraqualfs
Allemands	Clayey, montmorillonitic, euic, thermic Terric Medisaprists
Andry	Fine-silty, mixed, thermic Typic Argiaquolls
Aquents	Nonacid, thermic Aquents
Bancker	Very fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Barbary	Very fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Basile	Fine-silty, mixed, thermic Typic Glossaqualfs
Cheniere	Carbonatic, thermic Typic Udipsamments
Clovelly	Clayey, montmorillonitic, euic, thermic Terric Medisaprists
Coteau	Fine-silty, mixed, thermic Glossaquic Hapludalfs
Creole	Fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Crowley	Fine, montmorillonitic, thermic Typic Albaqualfs
Delcomb	Loamy, mixed, euic, thermic Terric Medisaprists
Dundee	Fine-silty, mixed, thermic Aeric Ochraqualfs
Fausse	Very fine, montmorillonitic, nonacid, thermic Typic Fluvaquents
Frost	Fine-silty, mixed, thermic Typic Glossaqualfs
Frozard	Fine-silty, mixed, thermic Aeric Ochraqualfs
Ged	Very fine, mixed, thermic Typic Ochraqualfs
Gueydan	Fine, montmorillonitic, nonacid, thermic, cracked Typic Fluvaquents
Hackberry	Sandy, mixed, nonacid, thermic Aeric Haplaquepts
Jeanerette	Fine-silty, mixed, thermic Typic Argiaquolls
Judice	Fine, montmorillonitic, thermic Vertic Haplaquolls
Kaplan	Fine, mixed, thermic Aeric Ochraqualfs
Lafitte	Euic, thermic Typic Medisaprists
Larose	Very fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Memphis	Fine-silty, mixed, thermic Typic Hapludalfs
Mermentau	Clayey over loamy, montmorillonitic, nonacid, thermic Aeric Haplaquepts
Midland	Fine, montmorillonitic, thermic Typic Ochraqualfs
Morey	Fine-silty, mixed, thermic Typic Argiaquolls
Mowata	Fine, montmorillonitic, thermic Typic Glossaqualfs
Patoutville	Fine-silty, mixed, thermic Aeric Ochraqualfs
Scatlake	Very fine, montmorillonitic, nonacid, thermic Typic Hydraquents
Udifluvents	Nonacid, thermic Udifluvents

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